A Database Publication

AppleUser

Vol. 7 No. 11 November 1987 £1.50

Plotter programming: A step-by-step guide

Dumping artwork from Mousepaint

Book design: An expert points the way

How to create your own font editor

Back to school with the Mac

REVIEWS

- Document Checker
- Stepping Out
- Printworks
- Omnis 3 Plus
- Printrix
- Gazelle
- Point to Point

+ all the latest games for the Apple II and Mac

Make the most of Apple II communications

Stack appeal – that's HyperCard

Give your APPLE the best!

INNOVATION

HD-Mate
Ultimate Hard Disk Partitioning

The HD-Mate utility is designed to allow you to have *both* ProDOS and PASCAL 1.3 programs on the *same* Hard Disk! (And if you're already using Cirtech CP/M Plus, you can have three operating systems on the same Hard Disk!). Simply select the sizes of the ProDOS and PASCAL areas you wish, install the PASCAL area, and you're ready to start using your new-look Hard Disk. The PASCAL area is divided into two equal-sized volumes called HDMATE1 and HDMATE2. Normal operation of the Hard Disk is not affected and all standard PASCAL 1.3 and ProDOS commands work in exactly the same way as with an ordinary disk drive. You can start up PASCAL or ProDOS from any disk drive (including the Hard Disk) and both systems will see their appropriate part of the Hard Disk.

MAKE THE MOST OF YOUR HARD DISK WITH HD-MATE £38.00

Uni-Mate
A disk's best friend!

Uni-Mate gets rid of all those tiresome disk constraints, with support for several storage devices under DOS 3.3, PASCAL 1.1/1.2 & CP/M 2.20b/2.23 on the various models of Apple computers:

	DOS	PASCAL	CP/M
UniDISK 3.5	+ e c g	+ e c g	+ e c
3.5 Disk	g	g	
Slot RAMcard	+ e c g	+ e c g	
SCSI Hard Disk	+ e c g		
SmartPort Hard Disk	+ e c g	+ e c g	
Profile Hard Disk	+ e c g	+ e c g	
IIGS Internal RAMdisk	g	g	
IIGS Internal ROMdisk	g	g	

(+ = Apple II or II+; e = Apple //e; c = Apple //c; g = Apple IIGS)

TOTAL VERSATILITY FOR ONLY £28.00

plusRAM
the COMPLETE range of memory cards

plusRAM and plusRAM-xtra (with the unique RamDesk Manager memory management system) are designed for the II+, //e or IIGS, giving 256K to 1 Megabyte extra memory. plusRAM-GS2 and GS8 are designed for the IIGS, giving up to a massive EIGHT MEGABYTES of extra memory – on one card! You can even add a further 512K with the instant-loading ROM/PROM-Disk Adaptors. plusRAM cards are fully ProDOS, DOS 3.3, PASCAL & CP/M compatible and are used by standard Apple II programs as super-fast electronic disk drives! plusRAM cards also feature AppleWorks 2.0/1.3 expansion with multiple disk saving, mouse control, date/time display, print buffer and calculator (also allows use of AppleWorks 1.3 on the II+).

FROM ONLY £99.00

VERSATILITY

CIRTECH

POWER

CIRTECH CP/M PLUS
Advanced operating systems

The sophisticated new CP/M Plus Systems let you use the huge range of CP/M programs, like dBASE & WordStar, on your Apple IIGS, //e or //c! With a lightning-fast 8MHz co-processor card and the most Advanced version of CP/M Plus, these Systems make full use of the Apples' power. Pop-up ToolKey windows allow you to copy and format disks, print screen dumps, control internal print buffers etc., at any time! The inbuilt File Manager, with pull down windows, keeps track of your programs and can be used to select user areas run, copy, delete or rename files; & there's even an on-screen, full-function calculator! Fully compatible with all Apple-standard devices and you can even use CP/M Plus & ProDOS on the same hard disk!

TOP PERFORMANCE – £118.00

CIRTECH

VALUE

CIRTECH CHAMPIONS
first choice for printing!

The Champion range of printer interface cards for the Apple II+, //e and IIGS give you all the text and graphics print commands you'll ever need (like text and graphics screen dumps, character font/size selection, line/page/margin controls, $ or £, Independent X & Y axis scaling, etc.) Text printing is supported on all modern printers, with graphics features available on all printers with 'Epson-type' graphics codes. Compatible with ProDOS, DOS, CP/M & PASCAL, Champion cards have a full 8 bit parallel Interface as well as inbuilt serial I/O capability for RS232c type interface using a Serial Adaptor. Champions are also available with a massive 64,000 character buffer & imagewriter/DMP printer and EPROM programming versions.

FROM ONLY £49.00

CUT PRINTING TIME
with a Cirtech CACHEBOX

No more wasted time waiting for a slow print operation to finish – with a CACHEBOX connected between your computer and printer, data is accepted as fast as your computer can send it (up to 20,000 characters per second). CACHEBOX stores the data in memory, leaving you free to use your computer while it takes care of the printing. Lengthy documents can also be stored in CACHEBOX until you're ready to print them and, with the multi-copy facility, you can make as many copies as you like, when you like! CACHEBOX comes complete with all required cables & is available in two sizes, 256K or 512K (enough for 200 or 400 full A4 pages!) in three interface configurations: parallel input/output; serial input/output; and parallel or serial input or output.

FROM ONLY £198.00

PERFORMANCE

I want to know more – please send me full data on all the CIRTECH products!

NAME: _____

ADDRESS: _____

_____

_____

CIRTECH — *the way forward*

Access MasterCard

CIRTECH (UK) Limited, Currie Road Industrial Estate, Galashiels, Selkirkshire, TD1 2BP, Scotland
Telephone: (0896) 57790 Telex: 265871 (MONREF G) ATTN. 84: CPD 001 (Telecom Gold)
SOURCE Mailbox: AAH555 Mailbox System No. 84 – MAILBOX CPD001

Vol. 7 No. 11 November 1987

Managing Editor
Derek Meakin
Technical Editors
Max Parrott
Cliff McKnight
Features Editor
Phil Botham
Production Editor
Peter Glover
Advertising Sales
John Snowden
Gail Blincow
Reviews Coordinator
Pam Turnbull
Promotions Editor
Christopher Payne
News Editor
Mike Cowley

Tel: 061-456 8383 (Editorial)
061-456 8500 (Advertising)
061-480 0171 (Subscriptions)
Telex: 265871 MONREF G
Quoting Ref. 72:MAG001
Telecom Gold: 72:MAG001
Prestel Mailbox: 614568383

Published by:
Database Publications Ltd,
Europa House, 68 Chester Road,
Hazel Grove, Stockport SK7 5NY.

Subscription rates for
12 issues, post free:
£18 UK
£23 Europe & Eire
£25 Overseas surface
£38 Overseas Air mail

ABC 11,780
January-June 1986
ISSN 0267-4114

Writing for Apple User: Articles and programs relating to the Apple are welcome. Articles should preferably be typed or computer-printed, using double spacing. Unsolicited manuscripts, discs etc, should be accompanied by a self addressed stamped envelope, otherwise their return cannot be guaranteed. Unless agreed otherwise, material is accepted on an all rights basis.

News trade distribution: Europress Sales and Distribution Limited, Unit 1, Burgess Road, Ivyhouse Lane, Hastings, East Sussex TN35 4NR. Tel: 0424 430422.

Features

Comms

Programming

Reviews

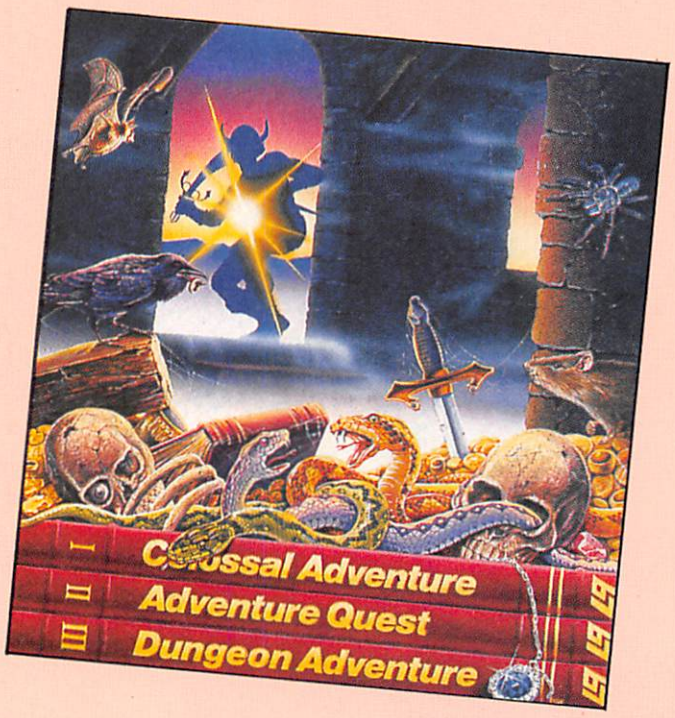
AppleUser SPECIAL OFFERS!

Two top adventure trilogies for you to play

Award-winning software house Level 9 has extensively re-written some of their best-selling adventures, and released them in two trilogies: Jewels of Darkness and Silicon Dreams.

In the Jewels of Darkness trilogy you start with Colossal Adventure, containing all the treasures, creatures, rooms and puzzles of the mainframe original.

In Adventure Quest you must discover the Old Roads to the Dark Tower, Fortress of the Demon Lord. Only there can you defeat him. There's magic in the air in Dungeon Adventure. Can you discover the treasure while facing the perils of skeletons, carniverous jellies and orcs?



The first adventure in the Silicon Dreams trilogy is Snowball. You awake from suspended animation to find your spaceship on a collision course with Eden. In Return to Eden you must prevent the defence robots from destroying your ship. You have lost your memory in the Worm of Paradise, and you may have to join the governing party to regain it.

Each features:
Over 600 illustrations
New language interpreter
Huge 1,000 word vocabulary
Multi-command sentences
Ultra fast response times
64 page novel and 12 page guide

Apple IIe or Mac	RRP	Special Reader Offer	You Save	Offer Inc. Subscription	You Save
Silicon Dreams	£19.95	£14.95	£5	£30.95	£7
Jewels of Darkness	£19.95	£14.95	£5	£30.95	£7
Silicon Dreams and Jewels of Darkness	£39.90	£27.90	£12	£41.90	£16

You save £5 when you buy one of these packs or £12 if you buy both

TO ORDER PLEASE USE THE FORM ON PAGE 73

Honorware's falling foul of dishonesty

HONORWARE, the much used but seldom paid for electronic software service for Apple users, is losing some of its best authors.

The American-based tele-software system has fallen victim to dishonesty and laziness.

Some Apple owners stand accused of using the service without paying for it and, worse, pirating the programs and sometimes selling them.

A number of programmers in America and Britain, who have spent thousands of hours developing programs for Honorware, have given up any hope of making a living on the system and have gone commercial.

John Raymonds, author of the popular Dungeons of Doom, now considers it to be a free demo of a much better product, The Dungeon Revealed, which can now be bought for $37.50.

John received virtually no payments at all for Dungeons of Doom despite the fact that it was being played by thousands of people.

"His decision to go commercial is a loss for Honorware – but was an essential move if he was to make a living", said *Apple User* technical editor Cliff McKnight.

Despite the fact that evidence exists to show that Honorware programs are being used by Apple owners around the world, donations for use of the software are almost none existent.

Everything from games to communications programs are freely available, the only stipulation is that if you use the software then a small payment is requested.

An average fee of about $10 for programs that could cost up to $150 in the shops would seem to be a bargain. "However, many users appear to lack any sense of guilt when it comes to paying up", said Cliff.

Britain's own Patrick Buckland, author of the addictive Crystal Raider and Crystal Quest games, has also abandoned the system because of the reluctance of people to pay for his programs.

Patrick is now in the situation where Crystal Quest has been taken up commercially and does not want the Honorware version passed around.

He told *Apple User:* "I have had about 80 responses from Honorware users who have played Crystal Quest, not all of whom sent money. Another problem has been getting the few $10 dollar cheques I've received cashed, which costs me £5 a time.

"Honorware is something that you definitely do for a hobby rather than looking on it as a commercial prospect".

David Hancock. . . on the move

Hancock gets new top job

THE man who spearheaded Apple's emergence as a major force in the UK computer industry is moving on at the end of this year.

Apple UK managing director David Hancock has been appointed general manager of Apple Computer Pacific Region in the USA.

His job at the top of Apple UK goes to Keith Phillips, the current marketing director.

Both promotions are seen as rewards for Apple UK's success in recent years, particularly in establishing the Macintosh range here and capturing the leadership of Britain's desktop publishing sector.

Hancock joined Apple UK early 1984 as managing director after 11 years at Gillette where he rose from brand manager to international marketing director.

His arrival was timed to coincide with the UK launch of the Macintosh, at that time a totally new concept in computing, and he was instrumental in firmly establishing the machine in the UK marketplace.

Hancock also gets credit for the successful introduction and proliferation of specialist AppleCentres – there are now 20 of them in Britain – and giving Apple the lead in this country's booming DTP sector.

During his tenure, Apple UK ▷

Back door shut on lasers

STAFF at Apple Computer in California have been accused of ripping off the firm to the tune of $156,000 by selling laser printers "out the back door".

Employees, who can buy the products at a 59 per cent discount, are said to have resold them to dealers at a profit of $500 each.

An Apple LaserWriter Plus carries a recommended retail price of $5,799, but Apple staff can buy one for $2,375 – a much bigger discount than dealers' 32 to 40 per cent.

After discovering the fiddle, Apple said it would not be filing a complaint with the police and will treat the matter as "an internal affair".

No details were revealed about how many employees are involved – some reports say more than 100 – or how long the situation had been going on before management stepped in.

What's next from Jobs

FORMER Apple supremo Steve Jobs is said to be making steady progress with the first product from his new company, Next Inc.

According to reports from the US he already has a "box" for the machine with which he hopes to compete with the Macintosh in the top end of the educational sector.

Insiders say the unique shape created by Hartmut Esslinger of German firm Frog Design "looks like a jet black cube".

There is scant information about what the cube will contain, but rumour has it that it already boasts "extraordinary sound capabilities and dazzling graphics".

PLUG-IN PC COMPATABILITY

AMERICAN supplier Applied Engineering has brought out a plug-in card which turns the Apple II and IIGS into PC-compatibles.

Costing $500, the PC Transporter card is said to give the Apple II "fully-fledged IBM PC compatibility with full graphics emulation".

The card, expected to appear in the UK later this year, is up to four times faster than a PC and makes it possible to assemble an Apple II-based turbo PC compatible for under £600.

It's Dos Mac

THE Macintosh is topping the hardware sales charts in West Germany, according to that country's leading computer publication, Chip.

A survey by the magazine revealed the Apple machine beat the IBM PC XT286 into second place, with the IBM PC third, followed by the Commodore PC-10, Tandon PCA, Commodore PC-20 and IBM PC XT.

Surprisingly, the Schneider-badged hard disc Amstrad PC was well down the list, although the machine is touted as a best-seller in Germany.

The Best of MacPaint and MacDraw

When all you want is a masterpiece

SUPERPAINT £125

The people who know Mac software

MacSerious

The MacSerious Company
17 Park Circus Place
Glasgow G3 6AH

Phone 041-332 5622 Fax 041-332 3209 Telex 777021 MACSER G

MacSerious is here to help you get the products your Mac needs to make it do what you want. We don't sell directly to the public in the UK, but any Apple dealer should be able to get our products for you. To make it easier still, we have appointed a number (about 70 as we write) of Authorised MacSerious dealers around the country. For the location of the one nearest you, and our free catalogue, phone or write to us. If you seek advice about what's best for your needs, call us for that too...we're here to help!

Please note that all prices shown are exclusive of VAT and subject to change without notice.

THE MACSERIOUS PROGRAMMERS TOOLBOX

LightSpeed Pascal £110

Complete development environment for producing double-clickable applications. Ideal for both beginners and professionals. Includes high and low-level debuggers, numerous utilities and excellent documentation.

LightSpeed C £150

Integrated C environment for the development of applications and DA's. Full Toolbox and Unix compatibility. Object code is smaller and faster than that produced by other compilers, and generated ten times faster than any other Mac C compiler!

Capps´ £69.95

(Pronounced 'Capps Prime')

Editor Construction Kit for LightSpeed C. Gives programmers powerful tools for adding line-oriented text editing capabilities to their programs.

- Includes libraries for building applications, DA's, grep capabilities and directory navigation
- PEdit and Apple Edit DA with commented sources.
- Handles text over 32K with fast editing even on large files.

MacNosy Version 2 £80

The interactive disassembler. Fully documented, it lets you see what your code is REALLY doing.

MacNosy Debugger £150

This is the ultimate debugger: the easiest to use, the fastest and the most powerful. Essential for the serious programmer. Includes MacNosy.

Coming soon:

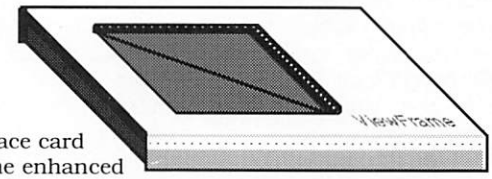
MacNosy Debugger for Mac II

MacNosy Debugger Card for Mac II

Call for more information.

Want to get your Mac-based ideas across to large audiences?

VIEWFRAME™ £1650



Display System, Ideal for sales, training, education and business planning.
The only display system of its kind.

- Works with all applications.
- No special software required.
- Can be used with any Macintosh (interface card supplied) or MS-DOS computers with the enhanced graphics (EGA) adapter board.
- Display shows the whole of the standard Mac screen.
- Crisp, clear text & graphics. Low visual stress, can be viewed for many hours at a time.
- Easy to use: Place VIEWFRAME™ on top of a conventional overhead projector (not included), plug the connecting cable into your computer, then plug VIEWFRAME™ into a power outlet and adjust the image size to suit your audience. That's all there is to it!

MultiTalk £695

MultiTalk is the serial port server that enhances your AppleTalk network by allowing any Macintosh computer on the network to share three asynchronous devices. It makes serial devices not designed to function over AppleTalk accessible to every user on the network.

- Allows asynchronous serial devices to be shared on an AppleTalk network.
- Allows any Macintosh on the network to access serial peripherals or computers.
- Runs Macintosh applications normally.
- Runs with unmodified Macintosh software.
- Straightforward installation software provided.
- Works at 75 to 9600 baud.
- Works with Mac 512, Mac Plus, Mac SE, Mac XL and Mac II.
- Compatible with MacServe, Tops and HyperNet.

Super 3D £295

Super 3D Ehanced £495

The ultimate 3D program: Can create and work with both wire frame and solid objects. Duplicated objects are only stored once, saving memory and disk space. Models are rendered at extremely high speeds. PICT files can be created to use in SuperPaint and MacDraw. Super 3D also makes EPS files for use in programs such as PageMaker. Can create animations and store to disk for later playback. And Super 3D Enhanced is designed to take advantage of the 68881 maths co-processor found in the Mac II and third-party upgrades. Super 3D Enhanced can display over 16,000 colours with full animation on a Mac II.

Apache Strike £44.95

Your mission: to successfully pilot a helicopter that must penetrate a large city and destroy SDI Computers to save the world from destruction.

First we gave you Dark Castle. Now, play...

Beyond Dark Castle

In the Ante-room of the original Dark Castle, our hero Prince Duncan now begins his search for the Magic Orbs in Beyond Dark Castle. After gathering all 5 Orbs, he must battle his greatest enemy - the Black Knight! If you like Dark Castle (and a lot of you do) you're going to love *Beyond Dark Castle!* **£44.95**

You wouldn't play cards without a full deck, would you? Why operate your Macintosh SE without one?

ExpanSE £995

ExpanSE expansion chassis system enables the SE user to select an array of option cards to configure a system that would not otherwise be possible. Instead of limiting the Macintosh SE to one expansion card, ExpanSE expands the functionality for the SE to four SE option cards. ExpanSE also provides an easy method of accessing and changing option cards; simply open the chassis and swap the cards. *Now the SE user can expand the power of his Macintosh and thus his productivity!*

It's one thing to have great graphics. It's something else to make them move...

VideoWorks II

Going far beyond the considerable power of its famous predecessor, VideoWorks II includes:

- Full animation and sound.
- Complete COLOUR painting program, up to 256 colours on the Mac II.
- Graphical notational score for editing up to 24 pieces of artwork at one time.
- Two disks of clip animation, tutorials and completed movies.
- Works with Mac II (in COLOUR!), Macintosh 512, Plus and SE.

Use VideoWorks II for:

- Animated presentations.
- Rolling displays.
- Movie and TV storyboading.
- Educational animations.
- Animated cartoons and music videos.

£195

Meet us at the MacUser Show in the Business Design Centre, Islington, London on *November 10th, 11th* and *12th*.

Beyond Zork on Apples

INFOCOM is to release Beyond Zork for the Apple II range and the Macintosh.

The interactive adventure game lets players create their own character. There are six attributes to choose from which include strength, endurance, compassion, intelligence, and dexterity.

The player has to seek treasure in an underground lair and enroute tackle monsters, civil disorder, wizards and enchanters.

On the Macintosh version it is quite safe to die as there is an undo key which allows the player to go back a move and restore the game to a safer level.

Some of the game's other features include programmable function keys which allow the player to perform frequently used commands with a single keystroke, mouse control of the character to move from room to room and an on-screen map. Price $44.95 from Infocom (0101-617 492 6000).

Top moves

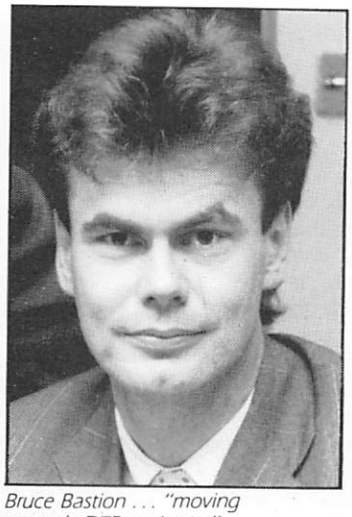
◁ won the parent company's coveted Country of the Year award in competition with Apple subsidiaries all over the world.

Another Gillette marketing executive, Keith Phillips also joined Apple UK in 1984 – as Macintosh business manager – and is credited with identifying the DTP sector and helping to push Apple UK to a dominant position in it.

In other moves at Hemel Hempstead, DTP marketing manager David Jones has gone to Apple Europe headquarters in Paris as head of all European desktop publishing operations.

A former Apple dealer and distributor in South Africa, he has been a driving force in Apple UK's DTP efforts over the past two years.

The new DTP marketing manager is Richard Bradley who has spent four years with the company in a wide variety of hardware and software marketing roles. He was previously product manager for DTP and helped launch the Macintosh Plus in Britain.



Bruce Bastion . . . "moving towards DTP packages"

WordPerfect for Mac

WORDPERFECT will soon be available on the Macintosh, making it the software's 14th computer format.

Announcing the word processor's new conversion – due in Britain early next year – chairman of the board of the WordPerfect Corporation Bruce Bastion explained his company's philosophy behind their product.

He said the continued success of WordPerfect was due to the fact that the company listened to its users more than most.

"We think it should be productive and natural to use. People have to be able to find what they want in the package.

"The purposes for which people want to use a word processor 80 per cent of the time are the areas in which WordPerfect shines".

He has very firm ideas about the future of the package: "There will be more compatibility and more interaction with other pieces of equipment.

"Word processing is moving towards desktop publishing. I am not talking about separate packages, I mean a WP with DTP facilities".

When Apple tried to swallow Xerox

JOHN Sculley, the man who ousted Steve Jobs and restored Apple Computer's profitability, has written a book about his career.

Called Odyssey: Pepsi to Apple...A Journey of Adventure, it includes hitherto unrevealed aspects of the company's activities.

For example, not many people know that Apple tried to take over Xerox in 1984.

At the time Apple was a $1.5 billion a year company while Xerox was turning over at least $9 billion. But Sculley says Xerox was vulnerable because of its size and its failure to develop its technological discoveries.

Talks between the two companies were held, but for various reasons the proposed deal fell through. Sculley claims negotiations weren't helped by Jobs' "arrogance and rudeness" towards Xerox officials.

However, Apple did well out of Xerox in other ways. Notably by successfully marketing concepts like the Macintosh graphic icon and mouse interface – developed at the Xerox research centre in Palo Alto – and luring many Xerox research scientists to its Cupertino laboratories.

APL's price slashed

THE price of APL68000 on the Macintosh and Macintosh Plus has been reduced by more than £100 to £99.95.

Acording to Micro APL, the reduction is a result of increased demand for the programming language from Macintosh owners.

The APL Language has been around for more than 30 years on mainframe computers and has only recently been implemented on micros.

Some of its features include quick draw graphics, user-defined alert boxes, user-defined pull-down menus, full clip board support for text and graphics, built-in full screen editor, terminal emulation and the ability to drive laser and image writer printers.

Battle over army contract

APPLE has joined forces with Magnavox in a bid to win an $800 million US Army contract for a new battlefield command and control system.

Indiana based Magnavox, a well-established defence systems supplier, will be prime contractor for the bid, which involves 18,000 Macintosh computers.

The joint project reflects Apple's determination to win a larger share of the US government's annual $1 billion spend on personal computers. So far the firm has had to be satisfied with a $4 million order from the US Navy.

A decision on who gets the US Army contract, also attracting Hewlett Packard and Unisys, is expected next spring.

Mac macro

WORKS Plus Command is a macro package for use with Microsoft Works, the leading integrated business package for the Macintosh.

Command adds a number of features to Works – it will print multi-column labels, generate a table of contents and indexes for word processing, and perform global search and replace in database and spreadsheet documents.

The program also gives the user the ability to record all complex steps needed to generate weekly or monthly reports.

NEWSROOM AGREEMENT

IN a joint venture agreement with Springboard Software, Microprose Software is to market Springboard's Newsroom, Clip Art and Certificate Maker products throughout Europe on an exclusive basis.

With Newsroom for the Apple II range of computers it is possible to create pages of text and graphics. 600 pre-drawn images are included in the program with such items as trees, dogs, buildings, cars and planes.

Adding more functions

Duncan Langford experiments with the Mac's hidden keyboard

THIS month I'm going to respond to a query raised by a reader, and in doing so show how your Mac can be personalised to carry out a surprising number of actions using a single keystroke – well, *almost* a single keystroke.

The question I was asked? "Is a special keyboard available for the Mac Plus, to allow it to have some function keys, like the PC?" Like the PC? Good grief!

For the uninitiated, a function key is a single key which may be set to allow a command, rather than a keystroke, to be carried out when the key is pressed. On certain other computers, there is a row of special keys across the top of the keyboard – the standard Mac keyboard, of course, has no such keys. But surely, anything the PC can do, the Mac can do better and faster...?

Don't worry. Although there are no special keys marked on the normal Mac Plus keyboard as function keys, they are there, and have been, even in the original 128k Mac. Apple has given us four built-in function keys, or FKEYs – they allow a disc in drive #1 to be ejected, a disc in drive #2 to be ejected, and the screen to be dumped, either to a MacPaint file, or to the ImageWriter printer (see Figure I).

Where are these mysterious keys? In fact they're the number keys -- 0 to 9 on the keyboard – although to operate them as function keys, they must be pressed at the same time as the Shift and the Command keys. By the way, Caps Lock up/down toggles between dumping the full screen, or the active window.

What happens when a Mac function key (or FKEY) is pressed is determined by a specially written routine for each key. This routine originates in a special file, named a Resource file, rather than the Application or Text files we have dealt with previously.

The file must, though, be made an integral part of the currently active System file for an FKEY to be available from the keyboard. As you would expect from Figure I, the first four of the 10 available slots are built-in to every System file by Apple.

Although it is theoretically possible to remove two of these existing FKEYs – in fact we'll exchange one in a moment – it's best to consider only the vacant slots, numbered 5 to 0, for the installation of new keys.

As I've mentioned before, although dealers and user groups are useful sources of the applications I describe, all of them are available from MacTel, the Macintosh bulletin board. MacTel was the source for all the FKEYs mentioned here.

Although there are six vacant "slots" awaiting new keys, there are many more FKEY resource files than that available, and more are constantly being written. Apart from checking your local user group and MacTel, it's well worth while mentioning FKEYs to other Mac users you may know, asking which they have, and which they find useful.

Don't worry if the only way you can get hold of a desired FKEY is in a copy of a friend's System file; I'll show you in a moment how to extract it, so that you may save it in an individual FKEY file, or install it into your own System.

It may help in understanding how FKEYs fit into the Mac scheme of things to think of them as being very like a desk accessory, activated by pressing a key rather than selected from a menu. FKEYs may be invisible until used, but they are also rather like desk accessories in normally needing to be installed into a System file before they work.

Remember, the System file currently having control of your Mac is the one which needs the FKEY installed: Should you boot up with a different System, all your carefully installed keys will be unavailable.

You could of course take advantage of this feature, by setting up different FKEY configurations for different applications, and installing each in the System file belonging to the application – you may then find it useful to keep a separate note of which FKEYs are installed where.

Unfortunately, Apple has not yet released its own application to install and remove FKEYs, as it has with the Font/DA Mover. However, to move all available FKEYs in and out of your System file, you can use our old friend, ResEdit.

One application which will move most FKEYs to and from the six slots is freely available. Obtainable from the software house Dreams of the Phoenix, it is aptly named FKey Installer. Although the application is free, it and 12 FKEYs – as well as much else – are on the interestingly named Quick and Dirty Utilities Volume Two – highly recommended.

The FKey Installer is so useful that it has established a standard, and virtually all FKEYs that do not have their own resources are now being written to take advantage of it (see Figure II).

Another similar application is Carlos Weber's FKey Manager, which also makes use of the same standard and is a little easier to use. It's free, too, and part of a larger package intended to make FKEYs easier to use. However, I'm not sure how widely distributed it may be – the copy I have is labelled a preliminary one (see Figure III).

Although moving a resourced FKEY with

Built-in Macintosh Function Keys	
Press	To
Shift - ⌘ - 1	Eject disk in drive #1
Shift - ⌘ - 2	Eject disk in drive #2
Shift - ⌘ - 3	Dump screen to a MacPaint file
Shift - ⌘ - 4	Dump screen to ImageWriter printer
(where '⌘' is the Command key)	

Figure I: Built-in function keys

FKEY Installer
from
Quick & Dirty™ Utilities Volume Two
Copyright ©1985 by William Bond
All Rights Reserved

This application is released for non-commercial distribution by Dreams of the Phoenix, Inc. We are releasing FKEY Installer to the public and to other developers to encourage further development of the FKEY concept. Commercial developers may license FKEY Installer for a very reasonable fee.
Quick & Dirty Volume Two contains 12 FKEYs and many other utilities.

Dreams of the Phoenix, Inc.™
P.O. Box 10273
Jacksonville, FL 32247
(904) 396-6952

All Dreams of the Phoenix, Inc. products are priced at only:
$39.95

Figure II: FKEY Installer's information screen

Figure III: FKEY Manager's information screen

ResEdit is perfectly possible – in fact it's the only way *to* move it – the procedure is rather more complex, so in this article I shall only be dealing with the more straightforward FKEYs – those which do not have their own resources.

When you have collected some FKEYs and are ready to install them in your System file, the initial stages we need to take are probably fairly familiar by now.

Copy all the files to a new disc. This time, it's probably best to copy the System you wish to modify, a Finder, ResEdit, FKey Installer or FKey Manager, and all the FKEYs you wish to add to the file. Remember, there is a six slot limit, so don't expect to install a dozen or so FKEYs. Any changes we make may not come into effect until the modified System is rebooted, by the way.

Let's start by tackling the most difficult task, using ResEdit, and install what I feel is perhaps the most useful FKEY I have found. It's free, and I use it almost every day. Simply and unimaginatively called Copy Screen, it's a resource file which, when properly installed, allows you to selectively copy any portion of the current screen to the clipboard as a graphic image just by pressing FKEY+9 (Shift+Command+9).

It's actually similar to the way the current screen is sent to disc by the existing FKEY+3, except that the image is placed in the clipboard, and it's possible to select whatever size portion of the screen you would like copied.

Any image on the screen – picture, text, MacDraw drawing, desktop layout, dialogue box, pulldown menu – can be instantly pasted to the clipboard, and thus to the Scrapbook, MacPaint, MacDraw, MacWrite, Word, File, as a picture image.

Start up ResEdit as usual, until the window is similar to that in Figure IV. Then double-click on the entry for the FKEY9 file. That action will open another window showing all of the resources contained in that particular file. In this case there is only one, the FKEY resource folder itself (see Figure V).

Double-click on that listing, and yet another window will open, this time showing the only FKEY resource contained there: FKEY9 (see Figure VI). Highlight that resource, by clicking on it once, and then copy it by selecting Copy from the Edit menu, or by using Command+C.

What we've done is to capture a copy of FKEY9 in memory. To place it inside the appropriate System, where it will have to go to be of use, we return to the main ResEdit window, the one which lists all the files of this disk (Figure IV) and double-click the copy of System we wish to modify.

As we have seen before, the window that then opens shows the resources contained by the System file (see Figure VII). Scroll to the FKEY entry, and double-click on it. When the FKEY window opens, you'll see that, unlike our previous experience, there are other FKEY resources present. These represent existing FKEYs, already installed.

To add the one we are holding in memory to the list, select Paste from the Edit menu or Command+V from the keyboard, and the FKEY9 resource will be automatically inserted into the list of FKEY resources (see Figure VIII). To copy an FKEY *from* a System file, exactly the same procedure is carried out in reverse.

Leave ResEdit by the usual method of

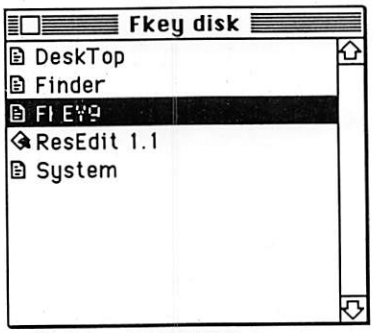


Figure IV: Select the FKEY9 file

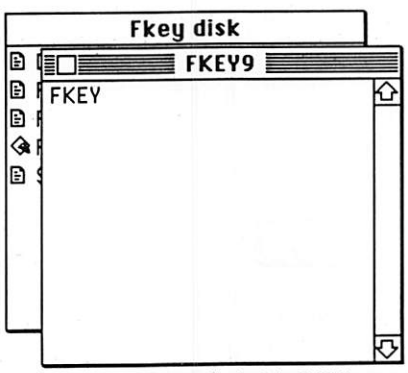


Figure V: The resource file inside FKEY9

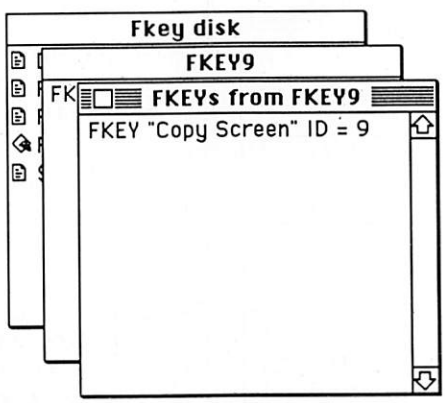


Figure VI: Inside the resource file – copy this to the Clipboard

closing all windows. When the Mac asks you whether you wish to save the modified System (see Figure IX) click "Yes".

Although it is possible to install all FKEYS with ResEdit, an easier method for those FKEYs which are compatible with their standard is to use either FKey Manager or FKey Installer. Of the two, FKey Manager is probably closest to the familiar Font/DA Mover, showing in one window both the FKEYs installed in your System, and those you may have loaded from disc (see Figure X).

When a new FKEY has been loaded into FKey Manager, it is installed by clicking the Copy button, when the renumbering window (Figure XI) appears. FKEYs may need renumbering if you wish the FKEY to be in a particular position, or if an existing key is already using the slot that the new ▷

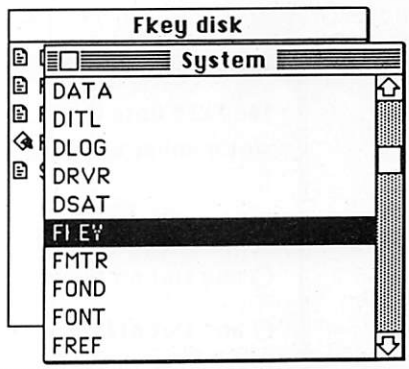


Figure VII: Inside the system file

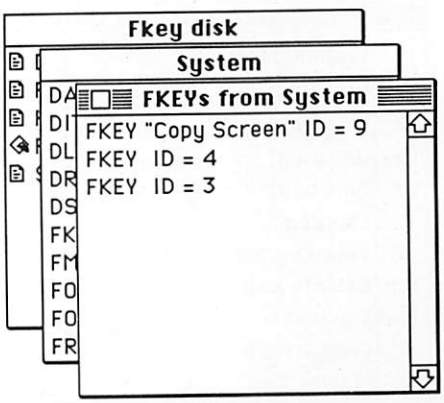


Figure VIII: Paste FKEY9 into the System FKEY folder

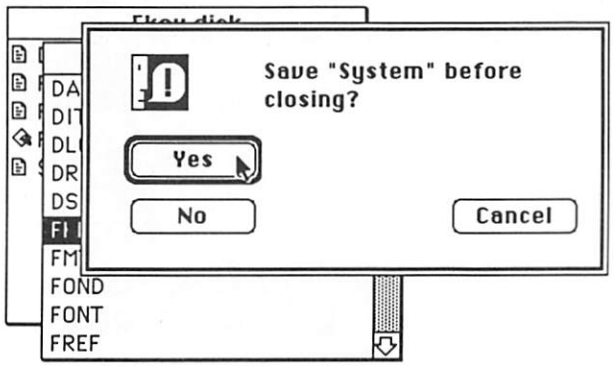


Figure IX: Don't forget to save your work

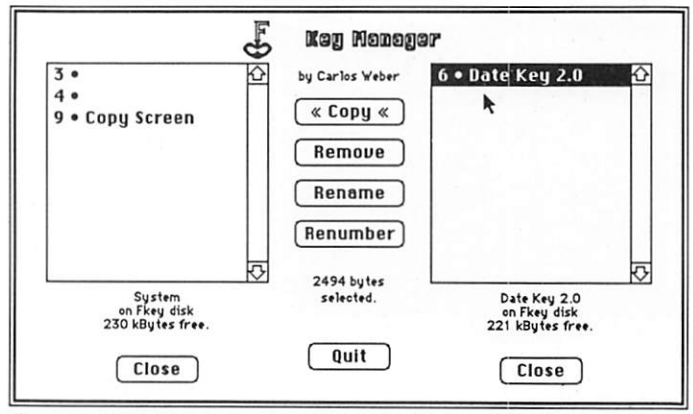


Figure X: FKEY Manager's format resembles the Font/DA Mover

◁ FKEY expects to occupy.

All that needs doing is for the number of the vacant slot to be typed in, or even to leave slot selection to the program. FKey Installer has a similar renumbering ability (see Figure XII). Removal of keys is carried out in the same way. They may be installed elsewhere, or stored in files.

An interesting exception to these methods of installation is an impressive FKEY which comes with its own installation application. Intended for users of the LaserWriter, it replaces the existing Apple routine in FKEY+4 (which dumps the screen to an ImageWriter) with a new one which allows the screen to be dumped to a LaserWriter instead.

Once installed, it is called from the keyboard in exactly the same way as the original. Friends having the use of LaserWriters tell me it's very useful, but unfortunately it doesn't work with the new 4.0 LaserWriter drivers.

What other sort of functions can be carried out by FKEYs? Well, virtually everything that can be made into a Desk Accessory can be shoehorned into an FKEY. Apart from those I've already mentioned, I've collected keys that will reset the Mac or customise the ImageWriter, load fonts temporarily into applications (Fontsie 1.5 – very useful) or allow files to be examined.

There are strange keys, like one that allows the cursor arrow to be doubled in size, and even a key that allows the use of Desk Accessories which you have stored on disc. (Incidentally, there is also a Desk Accessory that allows the use of **FKEYs** kept on disc!)

Most if not all of these FKEYs are either free, or ShareWare.

Let me end by describing a typical example – an FKEY called Date Key written by the prolific Lofty Becker. This is shareware – costing an incredible $3.00 – and allows the current date or time to be inserted automatically into whatever you happen to be typing when the FKEY is pressed (see Figure XIII).

It works on all text from Notebook to a word processor, and is one of those things which, once you have, you can't remember managing without.

Actually, I could fill my six FKEY slots five or six times over, but I'm still anxious to collect more of them.

FKEYs are rather like that!

Product: FKey Installer
Price: Free
Supplier: Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247
Tel: (904) 396-6952

Product: FKey Manager
Price: Free
Supplier: Carlos Weber, 250 Douglass St. #12 San Francisco, CA 94114
Tel: (415) 861-8956 – home

Product: LaserKey
Price: $15.00
Supplier: Human-Systems Interface Group, P. O. Box 1210, Vashon, WA 98070

Product: Date Key 2.0
Price: $3.00
Supplier: Loftus E. Becker, Jr. 41 Whitney St., Hartford CT 065105

□

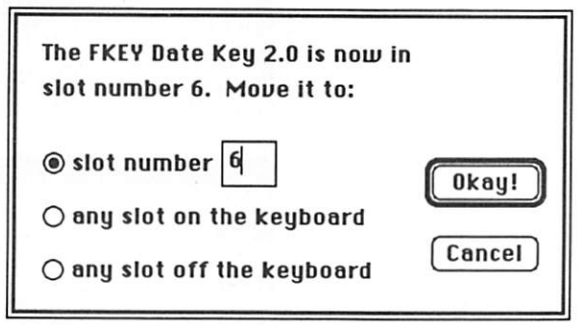


Figure XI: Choose any empty slot

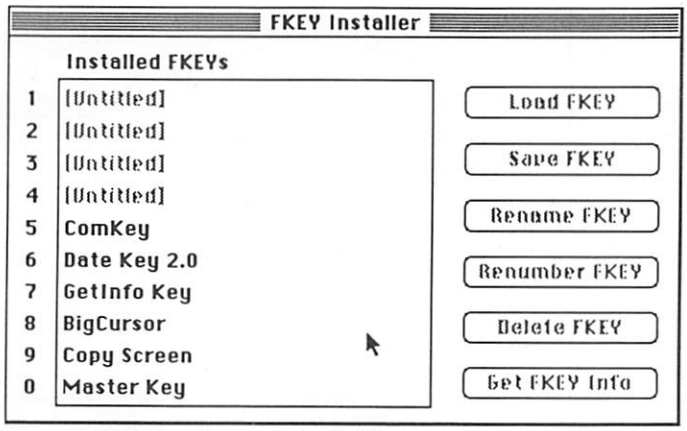


Figure XII: FKEY Installer has similar facilities to FKEY Manager

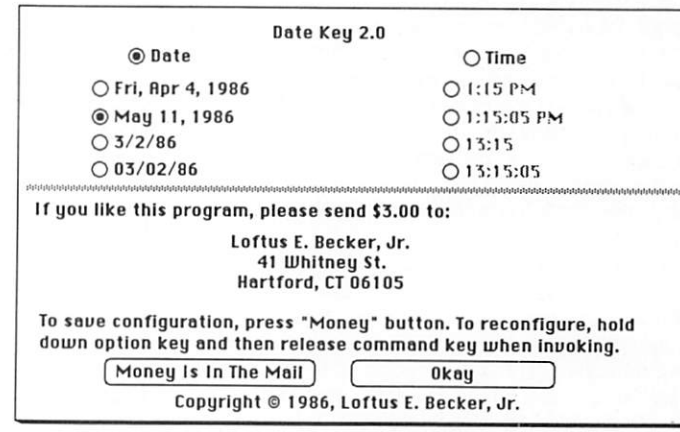


Figure XIII: The Data Key selection and request

Link your Apple II or Mac to the outside world with...

MicroLink

Electronic mail – The cheapest and fastest form of communication possible. It costs the same to send a message to one mailbox as to 500!

Telex – Link up with 96,000 telex subscribers in the UK and 1.5 million worldwide. You can even send and receive telexes after office hours or while travelling.

Telemessages – Type in your message before 8pm and delivery is guaranteed by first post the next day (except Sunday), anywhere in the UK and USA.

Tele-booking – Reserve train and theatre tickets, check flight details worldwide, or order from a vast range of products – from flowers to floppy discs.

Advice – Call on a team of professional legal and financial advisors as and when you need them, for both business and personal problems.

Company searches – Obtain facts about any British limited company in seconds, and fully analysed financial information on over 100,000 major companies.

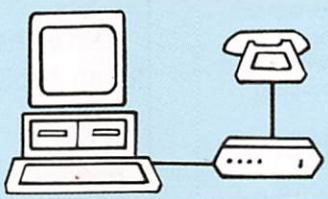
Translation – Access the biggest and most up-to-date multi-lingual dictionary in the world, with over 380,000 words.

News – Use the powerful search commands to pinpoint vital business information from the world's leading news services, newspapers and periodicals.

Radiopaging – If you also have a pocket radiopager you'll be alerted each time an urgent message arrives in your mailbox. So you're always in touch.

Gateways – Get through to New York in just five seconds – or key into the EEC computer in Luxembourg, which links you to 600 databases throughout Europe.

When you join MicroLink you've got the whole business world at your fingertips – 24 hours a day. You'll have immediate access to ALL the facilities offered by Telecom Gold ... and a great deal more besides.

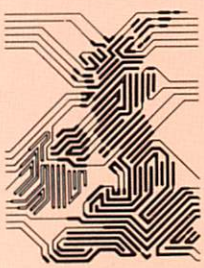


POSSIBLE PACKAGES	
	Apple II range
A	*Pace: Nightingale + Serial/ Parallel card + Data Highway software (£218.15)*
B	*Miracle: WS2000 + serial interface + Vicom software (£238.65)*
C	*Pace: Linnet + Serial/Parallel card + Data Highway software (£275)*
D	*Miracle: WS4000 + serial interface + Vicom software (£299.90)*
	Apple Macintosh
E	*Miracle: WS4000 + Vicom software (£339.95)*

All you need – apart from your Apple – is a modem, which plugs into your telephone wall socket, plus suitable communications software.

We have provided a list of possible combinations below, ranging from the very cheapest to ones which can automatically dial the MicroLink telephone number and connect you to the service – all you have to do is type in your personal security password.

Whichever equipment you use, you will be able to call MicroLink, open your mailbox, save to disc any messages waiting for you, and disconnect in as little as two minutes.



More than 90 per cent of subscribers can connect to the MicroLink computer at local call rates.

TO FIND OUT MORE
Fill in the coupon and send it to the address below. You will receive full details of services and costs, together with an application form. Complete this and within days you and your Apple will be able to use all the services of MicroLink and Telecom Gold.

Please send me full details about MicroLink, and information sheets about the following hardware and software options (please circle):

A B C D E

Name_____

Address_____

_____

Postcode_____

Send to: MicroLink, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

AU11

holdens
Computer Services

191 - 195 Marsh Lane, Preston, Lancs. PR1 8NL
Telephone (0772) 561321 and 52686

The Apple Specialists

Talking of specialists, we've recruited a much sought after person amongst the world of Apples. Joining us on the support team is Dave Palmer whose experience with Apples of all denominations is considerable (You may remember his UniDisk review in Apple User). We are pleased to welcome Dave to our organisation and hope his untamed enthusiasm can help our support facilities become unrivalled.
Look out for our special offers and bundles, and remember those long winter evenings.

Thank you for your continuing support..... Derek and Steve.

ONCE ONLY OFFER
TEN software programs for Apple II series computers for only £75.00 + VAT

TITLE	DESCRIPTION
ARITHMETIC SKILLS	An entry-level mathematics tutorial covering counting, addition, subtraction, division and multiplication
FRACTIONS	A tutorial for building skills in definitions of the parts of a fraction, addition, subtraction, division, multiplication, and finding denominators
ALGEBRA VOL 1	Five learning units: definition, number line operations, sets, evaluating expressions, and rules for equation reduction
ALGEBRA VOL 2	A first year algebra tutorial covering addition of real numbers, multiplication of real numbers, solving inequalities and solving equations & problems
COUNTING BEE	A number play which introduces children to counting, addition, subtraction, shape discrimination weight and measure
SPELLING BEE	A word and letter play which builds children's spelling and reading skills. Choose from 22 Word lists for each game
RENDEZVOUS	Space Shuttle flight simulation in four phases: Lift-off from Earth, Orbital Rendezvous & Approach, Alignment and Docking
EMPIRE 1 World Builders	Interactive Fantasy, a projection into the future featuring the rise and fall of an ntergalactic civilisation, played out over light years of time and space
EMPIRE II Interstellar Sharks	Welcome to the Empire, a civilisation poised on the summit of prosperity. You are entering the high-tech, high-tension and entrepreneurial arena of the Interstellar Sharks
PERCEPTION 3.0	Seven individual games which will challenge your visual judgement and sharpen your eye & hand co-ordination

All the above software is brand new and the average selling price, per package, in the United States is around $40. Due to the extremely low price at which this bundle is being offered we regret that we are unable to offer our usual software support.

Calling Apple IIc Owners -
TRADE UP TO AN APPLE II GS

Just £400 plus your mint Apple IIc
How does it work? Our cash price of £650 plus VAT for an Apple IIGS 256K is £747.50, less £347.50 for your IIc - leaves just £400 payable !

Naturally we will also make generous allowances if you wish to upgrade your disk drives , monitor or Apple printer

Apple IIGS

	Holdens	Education
Apple IIGS 256K	**£650.00**	**£635.00**
Apple Drive 3.5	250.00	195.00
Apple Drive 5.25	175.00	145.00
Apple Hard Disk 20SC	895.00	795.00
Apple Hard Disk 40SC	1295.00	1121.25
Apple Mono Monitor	90.00	75.00
Apple RGB Colour Monitor	375.00	325.00
Apple SCSI Interface Card	65.00	48.75
Apple SCSI Peripheral Cable	35.00	26.25
Apple Peripheral Adaptor Cable	20.00	15.00
Apple Exp Card 256K	95.00	71.25
Apple Extra memory per 256K bank	25.00	25.00
Apple Exp Card 1Megabyte	139.00	139.00
Apple Fan Kit	50.00	37.50
Apple Joystick	39.00	33.75
IIGS Monochrome System 256k	*850.00*	*795.00*
IIGS Monochrome System 1 Mb	*950.00*	*895.00*
IIGS Colour System 512k	*1150.00*	*995.00*
IIGS Hard Disk System 512K	*1850.00*	*1695.00*
IIGS Hard Disk Colour System	*2100.00*	*1895.00*

Cirtech Products

Cachebox 256k (P or S)	179.00	UNIMATE	28.00
Cachebox 256k (P & S)	199.00	CP/M Plus System IIe	110.00
Cachebox 512k (P or S)	249.00	CP/M Plus System IIc	110.00
Cachebox 512k (P & S)	279.00	Z80 Card II+ or IIe	45.00
PlusRAM 256k	89.00	Z80 Adaptor IIc	59.00
PlusRAM-XTRA	179.00	HD MATE	£38.00
Upgrade kits 256k	20.00	*(Splits HD20 for ProDos and Pascal)*	

Fast and friendly

A review of the Gazelle Comms Package by Max Parrott

THE Gazelle is designed to run only on 128k Apple IIs; that is, a IIe with extended 80 column card, a IIc or a IIgs. It comes in two forms; the first is a 5.25in disc for the IIe/c combination and IIgs and the second a 3.5in disc for the IIgs only. If you want to use the inbuilt IIgs modem and printer ports you need the 3.5in disc format. Both formats come with the same A4 typescript manual and both discs are Prodos formatted and are not copy-protected.

Either disc boots and immediately determines which machine it is in and as long as the machine is suitable a hi-res graphics picture is displayed. This picture offers the option of entering the terminal program, a copy program or a viewdata editor program.

Pressing the spacebar chooses the terminal program. If it recognises the machine it is in as a IIc or a IIgs (with internal modem port selected) or if it has been previously configured for a IIe with compatible serial card the program continues. Otherwise, if in a IIe (or a IIgs with a serial card selected in slot 2), you are offered the chance of installing the program for the card.

The Gazelle only supports three serial cards (or compatibles) but as these are by far the most common – the Apple Super Serial Card, the California Computer Systems CCS7710 (all forms) and the Pace Mastercards – there should be no problem for the majority of users. Of course IIgs owners will probably elect to, and IIc owners will have to, use the internal serial port.

I chose to use the IIgs (3.5in disc) version for most of this review but, unless I point out otherwise, anything I say should apply equally to the IIe/c version (5.25in disc).

The three programs which comprise the Gazelle – the terminal, the viewdata editor and the copy programs – are all controlled by pop-up menus. Normally a status bar shows at the top of the screen with the main options displayed along it.

You can move between these by using the initial letter of the option, by using the horizontal cursor keys or by using the mouse if one is fitted. Within the menu windows you can use the vertical cursor keys, mouse or initial letter to change choices – shown by a highlight bar moving up and down – and Return or mouse button to make a choice.

Many choices are toggles, so pressing Return merely changes the status, but others will open a further window which displays possible values. Pressing return accepts what's shown, cursor keys (or mouse) change the values.

Within the terminal program, pressing Open-Apple at any time enters the communication mode previously selected by menu: Another press returns you to the menus. The program always remembers where you were in the menus and since the arrangement is well thought out with related topics near to each other it is a very easy system to use.

The communication modes available are the "normal", Ascii, scrolling screen to talk to most systems, a viewdata area (in hi-res graphics) to talk to systems such as Prestel, and a DEC VT100 emulation mode for mainframe access.

I gave the terminal program a thorough testing on the IIgs, both via the inbuilt modem port and via a CCS7710 and an Apple Super Serial card in slot 2. I connected to a Pace Nightingale modem for telephone communications and also directly to other computers – an Apple II plus and a BBC model B running Commstar (a BBC rom based comms program).

A problem emerges with the IIgs and the internal modem port in that it will not support split baud rates. If you do not know what that means at the moment don't worry – the upshot is that you cannot access viewdata systems such as Prestel using the internal port. You can do so using one of the supported serial cards in slot 2 (as long as it is selected from the control panel).

The serial port in the IIc is not the same as that in the IIgs so it may support split rates – certainly the manual does not say it does not. However, if you have a IIc and wish to access Prestel you should check with Kolour Software.

You should be aware that viewdata systems are not like Ascii systems. They send a frame of information at a time rather than a stream of free flowing characters. This frame is composed of codes and characters in a 24x40 matrix so that a limited form of graphics may be implemented, but not all systems are the same.

Viewdata terminals in this country support Prestel and are usually fitted with a special chip which responds to the codes and generates the screen directly on a colour monitor.

The Gazelle can respond to this in two ways. The IIgs emulates the screen, and on a IIe (but not a IIgs) you can fit a Pace Colour Palette card which will drive an RGB monitor and show the correct viewdata frames as they are received – I have not tried this. Also, without such a card, you can view them in a monochrome, hi-res graphics emulation or offline in colour, emulated on the hi-res graphics screen.

The idea is that you can rapidly grab a number of frames from the system and ▷

Compare Unit Trust Performance. On-line colour is a new feature available only on the GS

◁ then view them at leisure, in good colour if you have the hardware, thus saving telephone connection charges.

The Gazelle has a buffer system so that incoming data, in viewdata or terminal mode, may be captured rather than just viewed. This captured data may then be saved to disc and later on reloaded and viewed at leisure or maybe dumped to a printer.

The program will perform all of this for you with the minimum of keystrokes, it supports all possible Prodos pathways and the ImageWriter printer for viewdata (graphics) dumps. On the IIgs it is necessary to take some care over the setting of the control panel printer port options and the printer install menu of the Gazelle in order not to have gaps in hi-res screen dumps.

Text-only buffers, that is non-viewdata captures, may be dumped to any online printer, but graphics does demand that an Imagewriter is online.

Incoming data may also be saved directly to disc in small bursts so that hopefully nothing is lost. To work correctly Xon/Xoff should be used – you have to go to the appropriate menu and set it, as selecting "Quickspool", the menu for disc saves, does not set it automatically.

Using Xon/Xoff and a 5.25in floppy the Gazelle captured data faultlessly at 4800 baud. With a ram card set up as a pseudo disc it was able to capture data at 4800

A Prestel graphics page downloaded and edited with the Viewdata editor

without the benefit of Xon/Xoff. Pressing Open-Apple at any time while spooling causes the file to be closed.

Transfer of files works without fault under Xon/Xoff but generally it is recommended that you use some kind of agreed protocol at both ends of the transfer. The problem is that both ends must agree on format. The Gazelle supports the most common protocol, Xmodem, but in an enhanced form.

Importing a file from a machine running normal Xmodem software was no problem: The Gazelle recognised what it was, put up a message to that effect and got on with the job. However, sending a file from the Gazelle under this enhanced Xmodem protocol was not so easy.

Generally, the receiver waits for the transmitter to start sending, but when the enhanced protocol transmits to a normal receiver the latter does not recognise anything and refuses to start. I found that deliberately starting the receiver late, so that it lost data at the start of transmission, did enable a normal receiver to pick up the data correctly.

This is easy enough to arrange when the

Glossary

ACIA: An achronym for Asynchronous communications Interface Adapter, a kind of chip which appears in many serial ports.

Acoustic Coupler: Older communications systems depended on fitting the handpiece of the phone into a device which generates and receives the tones for the signals. However, this is prone to extraneous noises unless very well fitting and is not recommended. See **Hardwired**.

AppleTalk: A serial communications system which is not used for communications via the phone system. It is used – at high speed – for local area networking of computers and printers.

Asynchronous: Serial communications depends on timing so that bit patterns are recognised. The transmitter and receiver can be connected so that they both run under the same computer clock, in which case the transfer of data is said to be synchronous.

More commonly, however, the transmitter and receiver run under different clocks, but do so at agreed, approximately identical rates. This is asynchronous serial transfer. Your system to work on your micro will always be asynchronous.

Ascii: A commonly accepted, 7-bit code for character recognition on computers. Because it is a 7-bit code, programs cannot be sent directly in Ascii as the full 256 possible values of a byte will not be sent. It is possible to send source listings in Ascii as they are straight text.

Program files may be sent to another machine provided that both are set up to receive 8 bits, but generally you need to use a file transfer protocol – to check that all is well and nothing lost. Text is relatively easy to check visually, but this is not so with a program. See **Kermit** and **Xmodem**.

Auto-answering modem: Some more expensive modems can monitor the line and respond to an incoming call. They alert the computer which can then respond itself. Only of use if you intend to run a bulletin board or such like.

Auto-sensing modem: Some more expensive modems can not only auto answer but also monitor the incoming signals and decide on the protocol being used by the caller, that is the word length, the rate, and the number of start and stop bits.

BABT approval: Devices (such as modems) which are to be connected to the phone system in the UK have to have received approval from British Telecom. They then are identified by a green sticker. Devices which are (quite legally) on sale but are not BABT approved are identified by a red sticker. It is illegal to connect them to the phone system, but legal to buy them. Strange isn't it?

Baud Rate: A measure of the speed at which information is sent or received, related to the number of bits sent per second. Approximately, the character rate is one tenth of the baud rate. Normal communications occurs with the transmission and reception rates equal, but it is possible to split the two rates.

Viewdata systems such as Prestel commonly transmit to you at 1200 baud, but you transmit back to them at 75 baud. This allows information to come to you more speedily and generally with such systems you do not want to send much information back – just frame numbers or carriage returns and so on.

Ascii systems such as Telecom Gold and bulletin boards commonly support rates of 300/300, 1200/1200 and sometimes split rates of 1200/75. When rates are quoted like this the transmission rate is quoted first.

Bell frequencies: America operates its phone system on different tones to the European CCITT frequencies. To call American computers directly – rather than by IPSS – you will need a modem capable of generating Bell frequencies.

Break-out Box: A device which can sit between two ends of a serial connection and monitor the signals, indicating via LEDs, on the lines. In addition, lines can easily be swapped around so that the correct match can be obtained.

Prestel's Micromouse – the popular on-line gossip column

two operators are in contact by voice telephone at the same time as serial transfers are taking place, but how many of us have two phones? It is more difficult to arrange timings correctly via the two screens alone, but not impossible.

However, I think that the Gazelle would be improved by offering both enhanced and normal Xmodem. I must admit though that between two Apple users, both using Gazelle, I would prefer the enhanced protocol to be used.

The Gazelle can successfully transmit normal Prodos text files under Xmodem, Xon/Xoff, or with no protocol but even more usefully it can directly transmit AppleWorks word processor files. This saves time because it means that you do not have to first "print" your work to a disc file from within Appleworks, then save it normally, then exit to Gazelle to transmit it.

In addition the Gazelle puts hard carriage returns at the end of each line which is of benefit when talking to most receiving programs, which do not like very long lines, and page breaks are not transmitted, which saves a series of empty lines being transmitted.

The Gazelle will also receive AppleWorks word processor files but remember that each line of text will end in a carriage return.

If you do not have AppleWorks (or some other word processor) to create text off-line, Gazelle has an in-built editor in the terminal program to assist. It's not a fully fledged word-processor but a line-orientated editor with word wrap at a line length preset by the user.

Carriage returns are put in at the end of each line, which is very sensible because many host computers have a limited input ▷

Bulletin Board: A computer system run permanently – or nearly so – for you to call into. Once logged on and identified you can browse around, get information, maybe down-load or up-load programs for your machine.

Bulletin boards vary in quality so check out more than one. Phone numbers may be picked up from other boards or computer magazines.

CCITT frequencies: The European (and British) phone operating tones, incompatible with the American Bell frequencies.

CCS: California Computer Systems, a company which produces a range of very successful serial cards for the Apple II range of computers. The CCS card most people have is the CCS7710

CRC: Cyclic Redundancy Check, a means of calculating a checksum on data. Most commonly found in disc/memory transfers, but is used in enhanced Xmodem file transfers.

CTS: Clear to Send, a DCE outputs this signal to a DTE after having received an RTS from it when it is ready.

DCD: Data Carrier Detect, a signal from a DCE device to a DTE device indication communication.

DCE: Data Communication Equipment, a device identified by the RS232 standard as one which transmits or receives information. A modem is a DCE, a printer may be defined as DCE or DTE and it is important to identify which your peripheral is.

DIN: A German standard for connectors, a round connector with several pins inside.

Down-load: Programs or files can be moved into your machine from another, in which case you are down-loading.

DSR: Data Set Ready, a signal from a DCE to a DTE indication that the DCE has a connection.

DTE: Data Terminal Equipment, a device identified by the RS232 standard as one which generates or takes information (in other words a terminal). Generally the computer – or a serial card in a II – is a DTE: However, take care with the CCS cards, which rather confusingly appear as DCE.

DTR: Data Terminal Ready, a signal from a DTE to a DCE indicative of readiness to send or receive.

D-way: A connector, usually with 9 or 25 pins, which viewed end on has a D shape to it.

Echo: As you type at the keyboard within your communications software, the characters generated are sent out via the serial port. They can also be sent to the screen in which case echo is on or maybe not, in which case it is off.

Confusingly, the characters sent out from your computer will be echoed back by the host computer and will appear on your screen. This requires full duplex and echo off, otherwise you see two of everything.

FIDO: A network of bulletin board and messaging systems. Check with computer magazines for 'phone numbers.

Full Duplex: As you send characters out via the serial port it is better if you can receive characters at the same time. This is full duplex and is recommended.

Half Duplex: If you cannot send and receive characters at the same time then you have half duplex: Not recommended.

Handshaking: The exchange of status information between DTE and DCE so that control of data transfer is maintained. There is hardware handshaking between devices and software handshaking between communications programs.

Hardwired: The modem is connected directly to the phone system so that after making connection to a host the 'phone is not used, it is hung up.

Host Computer: Generally the other computer to which you are talking via a telephone line. It will be running communications software with many added possibilities such as information providing and program downloading.

IPSS: International Packet SwitchStream, see **PSS**.

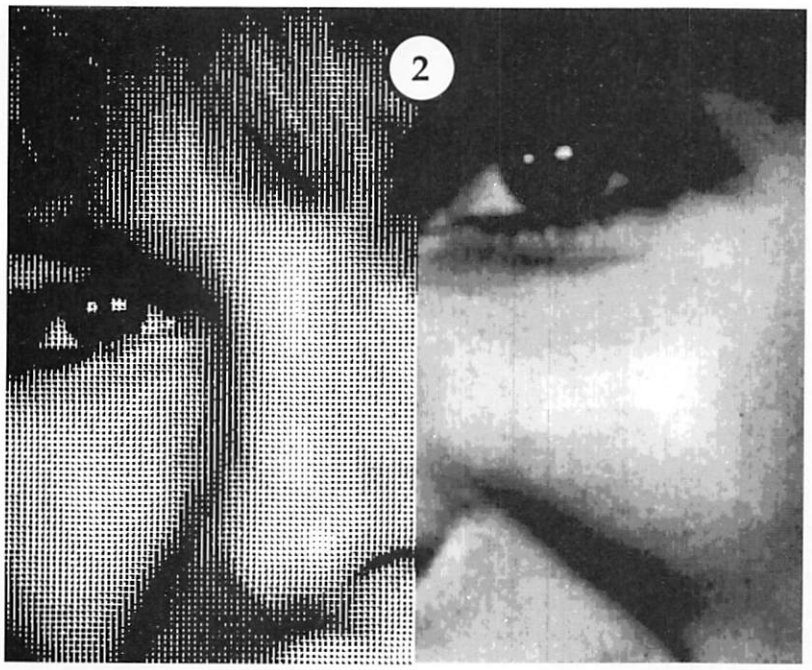
● *To be continued next month*

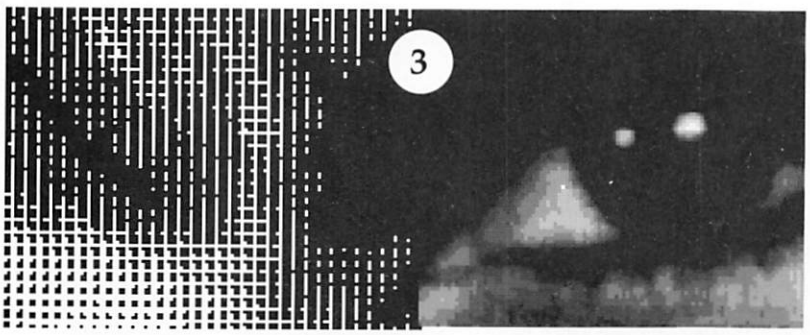
Abaton

Abaton Technology Corporation
7901 Stoneridge Drive, Suite 500
Pleasanton CA 94566

Why an Abaton Scan300/SF or Scan300/FB scanner with C-Scan 1.6 is the *only* choice for graphics scanning with the Macintosh.

HALF TONE GREY SCALE





- Abaton C-Scan 1.6 software introduces TRUE grey-scale scanning for the first time for a desktop computer.
- To see how it differs from the rest, we've included an example - an image scanned from a photograph, like you've never seen it before!
- Picture 1 shows the picture at full-scale, exactly as scanned.
- In the second picture, we've expanded a small area of the same image, showing how well it's appearance is preserved even when blown up three-fold.
- Finally, the third picture blows up the image twice more, to let you see the secret of this magnificent clarity - only now just visible are the individual pixels that come together to make the 16-level (4-bit) true grey-scale image that no other scanner system can offer.
- There are no special tricks here - the picture is completely unretouched, and printed on a Linotron printer.
- And it's the only scanning system that produces images that let you use the full power of Letraset's Image Studio graphics software.

Abaton products are distributed in the UK exclusively by

MacSerious

The MacSerious Company
17 Park Circus Place Glasgow G3 6AH
Phone 041-332-5622 Fax 041-332-3209
Telex 777021 MACSER

◁ line length. One thing that strikes me as somewhat odd is that this editor works with a memory buffer which is the same as that used to capture incoming data.

In other words you can capture data, or load it from disc and then edit it, but you cannot transmit it directly – you have to save it to disc and then transmit from there. I think it would be an improvement to be able to transmit the buffer contents directly, rather than have to save it to disc and then transmit.

I used the Gazelle with a very simple, manual dialling modem but it also supports autodialling and auto hang-up. The terminal program has a powerful macro system which I used to automatically provide the correct responses to MicroLink on Telecom Gold when logging on via PSS, and it is via these that the modem functions are carried out.

These macros not only send out strings of characters but also will wait for a preset character or string or time interval before acting. They can also be used to change baud rate and word format automatically, will load other tables of macros from disc and can call other macros.

Tone and pulse dialling are supported. One macro sends a 250ms "break" down the line and this appears to be the only way to do so – not that it's often needed but I think it would be nice to have a dedicated "break" key.

Some example macro tables (one is shown in Figure I) are available on the disc so that it is very quick to set up your own and the macro editor is easy to use. Each macro starts with an asterisk and a command character. If the character is a number then that macro is next used – an example is at the end of line 1 and again at line 2 and 3.

D allows auto-dialling and I puts out the string which follows: This can contain control characters which are displayed on screen as inverse characters (and in Figure I as lowercase letters).

Thus line 1 auto-dials and sends two carriage returns, the letters A2 and two more carriage returns. This is the start of the logging on sequence for a PSS pad. W waits for a character in the incoming stream then sends the subsequent string.

For example in line 2, after dialling, the PSS sends a query and the macro answers it automatically with the string NTLGOLD901TYM. All the time you are corresponding with Telecom Gold the macro in line 4 is searching for part of the message with which the system signs off. As soon as it's found, the last macro, *H, hangs up your modem. Note that each macro finishes with an asterisk and a space.

Macros are a great boon to communications – they save you having to remember strings of numbers and passwords. However, you do have to be careful with the latter because they are stored on disc for everyone to get at if you have saved them there in a macro.

The Gazelle's manual is misleading about actually sending macros. Having loaded a macro table from disc, it is installed and a macro line is invoked by pressing Open-Apple, releasing it and then pressing the number of the line.

However, the manual says to press Open-Apple and the number key at the same time and release both together – this does not work, indeed it hangs the computer and only pressing Reset gets you out of it. Incidentally pressing Reset does no harm, even when logged on to another computer.

The terminal program provides full access to all the functions required of the disc operating system, such as saving and loading of files, directory access, directory creation, prefix setting and deletion of files. All possible pathways are provided for.

Online help

The program settings you have made via the menus may be archived to disc, which is very useful because the same protocols tend to be used each time and they are henceforth loaded automatically when starting the program up.

There is also an online help window, which uses a disc file to offer help about a specific subject chosen from the menu. This can act as a memory jogger but I found it annoying because rather than actually explain a command or the syntax of the point in question, the help screen displays an index to all the places in the manual where that point is raised.

This means that when you first learn your way round the program you have to have the manual by your side and access it by this help window – there is no index in the manual. But there is a good contents list, and I found after a time that I used this rather than the help window.

The manual suffers from the lack of a

```
1..*D ↑ *.*ImmA2mm*2*
2..*W?NTLGOLD901TYMm*W?A219201004 ↑ m*3*
3..*SSign On*IID  ↑ m*Sword*I ↑ m*4*
4..*SCLR PAD*H*
5..* This macro dials and connects with a PSS PAD using a Hayes
6..* autodial modem. It will then call up Gold and log you
7..* automatically on to the system. When you leave, it will
8..* hang up the PSS PAD automatically.
```

Figure I: Example of a macro table used when autodialling MicroLink/Telecom Gold via PSS

good introductory chapter. I am reasonably experienced in using communications programs and so I soon found my way around the Gazelle, but I can imagine a first time buyer being overwhelmed by the program, or rather the subject, without some hand holding.

Once into the program, however, when you realise its modus operandi, the manual is very good – it is a very good reference guide, it's just not very good at introducing you to the program.

As well as the terminal program there is a viewdata frame editing program which uses the hi-res graphics screen to emulate the usual hardware-controlled viewdata screen. The full set of viewdata alphanumeric and graphics characters is supported together with double size text and colour backgrounds. Flashing characters are not supported.

The same screen is used to actually send and receive viewdata frames. As with the normal terminal screens, information frames are sent by saving them to disc and then transmitting from the disc files rather than from a buffer.

Frames may also be grabbed online, stored and edited, if desired, for later viewing. Frames may also be dumped to an ImageWriter printer, or put into a temporary memory buffer so that it can be experimented with and quickly redrawn.

A series of blank pages has been provided to provide Prestel pages off-line for later transmission, one of the blanks is an Information Provider (IP) page in the standard 22 line format, but you need to be a registered IP to use this facility.

The other program provided by Kolour Software on the disc is a copy program to aid in converting files from Dos 3.3 to Prodos format. It does not replace the Prodos CONVERT as it does not transfer from Prodos to dos, but it is very easy to use.

You mount the Dos disc in a drive, tell it where it is and ask to copy. All the files of the Dos disc are listed, you select the ones you want with the cursor keys and press C to initiate transfer. The process is quick and very convenient, especially if you have Dos ▷

◁ text files which you want to send down the line.

It is made particularly convenient by a kind of limited program launcher which is invoked whenever you leave one of the three programs. This offers you the choice of running the copy program, the viewdata editor, the terminal program, AppleWorks or quitting to Prodos.

Hence you can quickly move between the three programs of the Gazelle suite or into Appleworks if you prefer it as your editor.

This is the odd one out though, in that selection is made only by initial letter. It's quite hard to suddenly change from using the cursor keys or the mouse on a menu to seeing an apparently identical type of menu which does not respond as expected.

Conclusions

After some months of use, what do I think of the Gazelle? I found it very easy to use, after some initial problems with the manual and macros as I described above. In fact it is by far the easiest to use Apple Comms program that I know.

It is robust: Pressing Reset never causes a problem and indeed has only been necessary when I first was learning about the macros and how to really invoke them.

It is fast: I've never had problems with lost characters when, for example, screen scrolling which has been a problem for me in the past on an Apple II+.

I should say that I have deliberately used the IIgs at the fast and the slow processor speed and the Gazelle seems to behave the same with both. Its editor is convenient to use and although I usually prefer to use AppleWorks to create the text off-line I have used it for short messages without any qualms.

I think the manual could be improved with regard to an introductory chapter and perhaps with connection details for the more popular modems. This is especially true in the case of the IIgs, the serial port of which is not RS232 but RS422.

This means that the serial ports are described as compatible with RS232 devices (most modems) but how? Does anybody know? I connected the data lines and ground as one might expect but was not sure of the handshaking lines.

I opted for two solutions: In one I connected the modem's RTS and CTS lines to the Handshaking out and Handshaking in lines, in the other I just tied these two to each other at the gs end. Both options seemed to work equally well which I attribute to the serial port buffer of the IIgs.

Product: The Gazelle
Requires: A 128k Apple IIe with serial card, or IIc or IIgs, and at least one disc drive. Optionally a Pace Colour Palette card may be fitted in the IIe.
Price: £75.00
Manufacturer: Kolour Software Limited, 52, The Spring, Market Lavington, Devizes, Wiltshire, SN10 4EB.
Tel: 0380-818667.

□

AC. INTERACTIVE

TOP 20 MAC SOFTWARE AT TOP 20 PRICES

	RETAIL	OUR PRICE
ILLUSTRATOR	450	365
READY SET GO	395	268
PAGEMAKER	450	364
RAGTIME	299	223
CRICKET DRAW	295	225
MAC DRAFT	269	168
MAC AUTHOR	199	144
EZ-DRAFT	1995	1695
WORD III	295	208
QUARK XPRESS	695	595
VICOM	150	113
MS WORKS	245	178
MORE	295	160
TRAPEZE	295	189
LOTUS JAZZ	295	234
LAZERWRITER FONTS		From 33
MULTIPLAN	150	117
OMNIS III PLUS	445	320
MACMAX DBASE		295
HARDWARE		
40 MB HARD DISK	1995	895
THUNDERSCAN	284	239
POSTSCRIPT LAZER PRINTER	4500	3378
MEGASCREEN II	1795	1490
MACTABLET 12x12	495	419
HYPERCHARGER SE	1295	1095
LAZER TONER BLACK	99	75
IMAGEWRITER EMULATION-- CARD FOR FX, RX, LX	100	85

Prices shown exclude post and packing and VAT and are correct at time of printing

WHY PAY MORE?

- *Call us for our famous eye-testing Price List with over 2,000 items inc: Apple, IBM, Apricot, Epson software and hardware, printers, monitors, disks. All at great savings.*
- *Fast delivery.*
- *Quantity discounts.*
- *Credit accounts for PLC companies, government depts, hospitals, local authorities, schools, colleges, universities.*
- *Professional advice.*
- *Hotline support on all products sold.*

AC. INTERACTIVE

8 CLARENDON AVENUE, LEAMINGTON SPA
WARWICKSHIRE CV32 5PZ, ENGLAND
0926 450099

VISA · Access · AMERICAN EXPRESS · MasterCard · EUROCARD · LLOYDS · BARCLAYCARD

Avro Systems Technology Ltd.

Apple•IBM•Apricot•Epson•Amstrad

128K-512K Upgrade £175
2MB Upgrade (2x1MB SIMMS) £425
DataFrame 20XP £745 40XP £1130
Disk Head Cleaner SS £12 DS £14
MousePad £8.95 Mouse Cleaner £7.95
MegaScreen 2/ MegaScreen SE £1495
ImageWriter Ribbons (5) £15.50
Sony SS 3.5" Disks (10) £16.50
Sony DS 3.5" Disks (10) £22.50

Laser Bureau Service available.
Mac Rental - Weekly or Monthly,
Please call for further details.

01-848 1407

AST 79 Coldharbour Lane, Hayes, Middx. UB3 3EF

Computer Stationery

LETTERHEADS. 500 A4 microperforation letterheads printed black on high quality white paper with your name and address. If logo required please send same size artwork. Other quantities, colours by quotation. Price includes VAT and carriage. We can handle ALL your printing requirements.
Only £75.00 for 500 continuous sheets boxed inc. p&p.
Only £95.00 for 1,000 continuous sheets boxed inc. p&p.
Only £145.00 for 2,000 continuous sheets boxed inc. p&p.

Program Prompts

PROGRAM PROMPTS. Plastic laminated keyboard overlays for the Apple IIe providing an instant reminder of all commands, never hunt through the manual again!
£4.95 each inc. p&p for Apple II series.

Appleworks	Autoworks	Applewriter II
Wordstar	Flight Simulator II	ProDos & Utilities

SPECIAL OFFER all six for £25.00 inc. p&p

Public Domain Software

PUBLIC DOMAIN SOFTWARE from the United States
£3.95 each inc. p&p for Apple II series.

500 Basic Tutorial, mach lang, disassem
530 Astronomy, planets, forecast weather
592 Count calories, recipe box, nutrition
690 X-rated nudes, adults only
691 X-rated couples, adults only
760 Bulletin Board System program
761 Bulletin Board System documentation
811 CAD Program & graphing
812 CAD Program 2
813 CAD Manual
1102 Genetics, anatomy, biology

SPECIAL OFFER all 11 disks only £40.00 inc. p&p

Computability

P.O. Box 1, Hedge End, Southampton, Hants SO3 4QJ.
Telephone (04892) 6229

All prices INCLUDE postage & packing and VAT
Please make cheques/P.O. payable to COMPUTABILITY

Point to Point

Max Parrott reviews a Prodos based comms package

LIKE the Gazelle, Point to Point is designed to run only on 128k Apple IIs; that is, a IIe with extended 80 column card, a IIc or a IIgs running Prodos. Unlike the Gazelle, it is not controlled by pop-up menus but via a series of menus presented in exactly the same way as AppleWorks.

If you are used to AppleWorks you will be very much at home with Point to Point. If you do not know AppleWorks, suffice it to say that each menu appears as if it were a file card and on the card are some numbered options (see Figure I as an example).

You can move between options by a number or by the cursor keys. The current valid option if highlighted and pressing return selects it. Generally, another file card appears, slightly offset on the screen (see Figure II for an example), and you continue.

Getting started

At any time pressing Escape will have one of two effects. If you are in the middle of entering a line of text, the cursor will move back to the start of the line. Pressing escape at the start of a line will move back one menu.

Open Apple pressed in conjunction with another key is often used as a shortcut (to avoid going via menus) or as an editing or terminal command. The keys are essentially the same as in AppleWorks, so again there is no difficulty if you know that program.

On first starting Point to Point you are presented with an install menu but this is skipped on subsequent start ups, unless specifically requested. Installation is very easy: Point to Point presents more printer interface cards and serial cards than does the Gazelle and also offers some internal modem cards (Figure III). However, these are not very likely to be used by UK users because they are generally Bell rather than CCITT systems.

I tested Point to Point mainly on the IIgs, using the serial port, but also on a IIe fitted with the Apple Super Serial card and the old Apple Comms card. Everything worked well with no problems.

A telephone directory is kept by Point to Point and within this is entered the phone number and the communications set-up data pertinent to that number. The phone number is used for auto-dialling systems, but even with a manual one I found this useful because the number is on the screen in front of you and it saves having to look it up.

The program handles Hayes compatible modems and also another kind of intelligent modem of which I have never heard, called the Universal Data Systems 212A/D.

Once the system is set up, connecting to another computer is very easy. Just pressing return moves from menu to menu until you enter the terminal mode – see Figure II. Along the top of the screen are two lines which show the possible Open Apple+number options to do things such as catalog the disc or send a text file or the buffer contents.

Editors and macros

You can also send a binary file, send a file under X-Modem, send a break character, print while online, switch the buffer on and off, send macros and hang up the phone (intelligent modems only). The number of free bytes in the buffer is displayed and if you have a Prodos compatible clock the elapsed time in minutes is shown.

Pressing Escape suspends operations for two seconds and goes back a menu, but you can send the Escape character if necessary by pressing Open Apple at the same time as you press Escape.

Like the Gazelle, Point to Point has a simple, line editor for preparing short pieces of text for transmission via the buffer and of course the buffer contents may be saved to disc and reloaded from disc. Unlike the Gazelle, it does not have a Viewdata editor and in fact Viewdata services such as Prestel are not supported.

In many respects Point to Point is like the Gazelle. Its macros, although not the same and not invoked in the same way, are rather similar in what they can do and in the way they are edited. The text editors have about the same capabilities and the transfer of disc files is similar.

Comparisons

Point to Point can use X-Modem and the extended X-Modem which is slightly more convenient than in the case of the Gazelle. Neither supports Kermit or any of the other extended file transfer protocols such as Y and Z-Modem, but both support Xon and Xoff. Interestingly, Point to Point defaults to using Xon/Xoff.

Point to Point does not know the viewdata systems, but on the other hand it supports more interface cards – which may be important to some users.

Both support file and directory operations on the full range of Prodos compatible disc systems and both support the handling of AppleWorks word processor files directly as well as straight text files.

When fully conversant with the program it is slightly annoying to have to pass through all of the menus to get into the terminal mode and here the Gazelle scores because you enter it straight away. However, once connected to another computer, both programs use menus (albeit one has pop-ups and one has file-cards) to accomplish anything other than simple conversation.

The two packages score equally in ease ▷

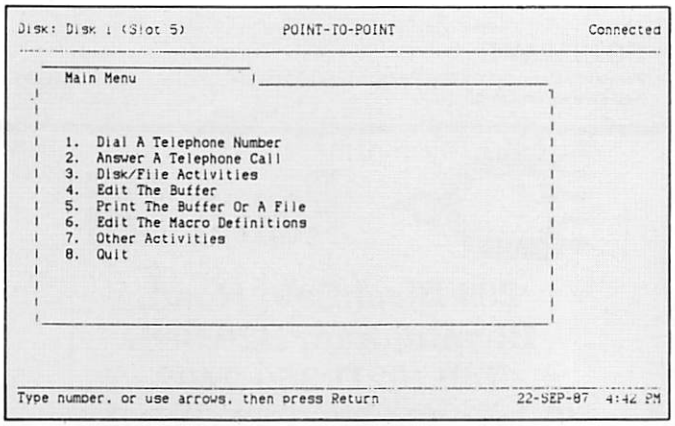


Figure I: The main menu card

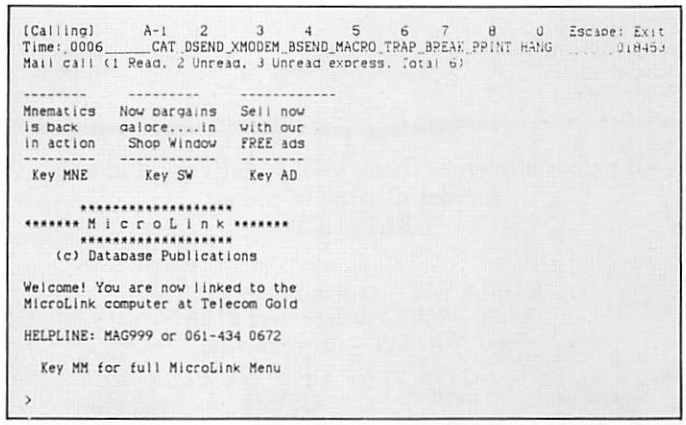


Figure II: The terminal screen connected to MicroLink

Internal Modems
Hayes Micromodem IIe and II
Novation Apple-Cat II
Transend (SSM) Apple Modem Card
Prometheus ProModem 1200A
Cermetek AppleMate 1200
Multitech Multimodem Zoom Telephonics
ZOOM/Modem IIe
Microcom Era 2

Serial or Parallel Printer Interfaces
Apple Parallel Interface Card
Apple Super Serial Card
Apple Communications Interface Card
CCS Model 7710A Asynchronous Serial Interface Card
SSM AIO Board
PKASO parallel interface card
Grappler and Grappler Plus parallel cards
Videx Uniprint Parallel Printer Interface
Videx PSIO card
Street Electronics BusinessCard
Apple IIc and Apple IIgs ports
or any card which adheres to the Apple standard firmware protocol.

Serial cards
Apple Super Serial Card
Prometheus VersaCard
CCS Model 7710A Asynchronous Serial Interface Card
CCS Model 7711 Asynchronous Serial Interface Card
Videx PSIO Card
SSM ASIO Apple Serial I/O Interface
Advanced Logic Systems Dispatcher
Apple Communications Card
SSM AIO Card
AST Research Multi-I/O Card
Macrotech Macrocomm Serial I/O Card
Street Electronics BusinessCard
Quadram Serial Interface Adapter
Quadram Multicore
and the Apple IIc and Apple IIgs ports

Figure III: Peripherals available for use with Point to Point

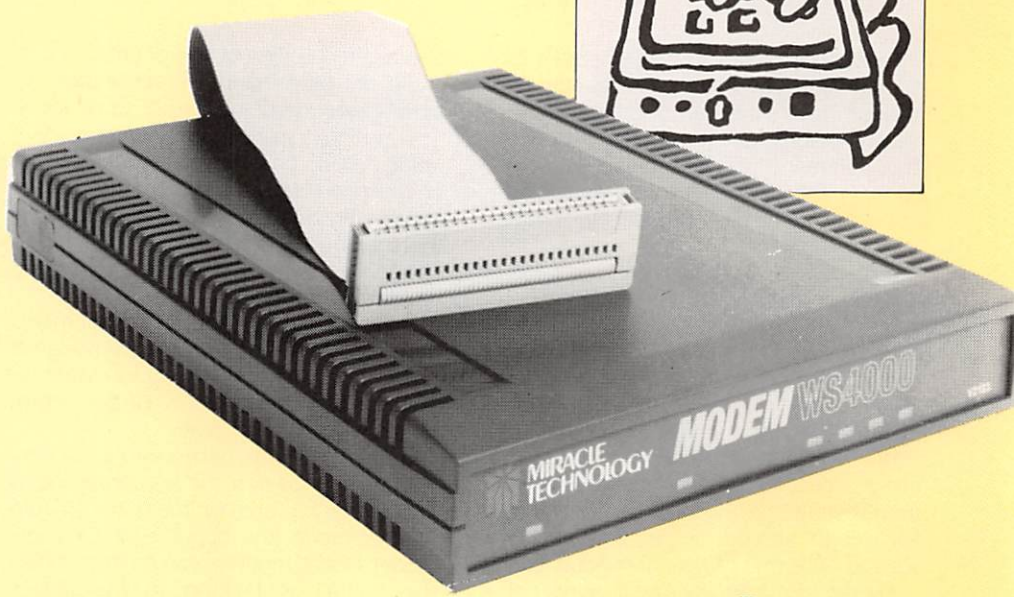
of use, although Point to Point does have a few shortcut, Open-Apple commands.

It makes sense to have a Prodos based communications program which is broadly based enough to handle your likely needs. If you need Prestel then you need the Gazelle. If you have a IIe and do not have the Apple Super Serial Card, the California Computer Systems CCS7710 or the Pace Mastercard as your serial interface, you may well need Point to Point.

The latter's manual is more complete than the Gazelle's. For example, it has some information about connecting modems (although not to the IIgs port), is better printed and has a quick reference card. However, both programs are easily learnt and little reference needs to be made to the manuals once over the initial stages.

Point to Point has some extra utility programs to aid in the transfer of program listings to other computers. There is a Basic to text file utility, a machine code to hex in Ascii form utility and a program to read an Apple Pascal disc and convert a Pascal source file to a Prodos based text file. These may be of use to some users and should be considered when making final decisions.

Product: Point to Point
Requires: A 128k Apple IIe with serial card or IIc or IIgs, each machine needs at least one disc drive.
Price: £113.85
Supplier: Pinpoint Publishing/Bidmuthin Technologies, P.O. Box 264, Harrow, Middlesex, HA3 9AY.
Tel: 01-907 8516



A modem for all seasons

Part 2 of Kate McGill's introduction to the world of Apple communications

THERE are well over 100 different modems on the market, ranging in price from less than £50 to over £700. But price is far from being an infallible indicator of performance. So this month I intend to grasp the nettle and recommend two specific models which fit the Apple bill, and which I consider excellent value for money.

Many will no doubt disagree with my choice. But selecting a modem is not like selecting a piece of furniture or a work of art. It's less a matter of taste than of hard facts, which should speak for themselves if the approach is unbiased.

Let's take a look at these facts, which I'll use as a backdrop to the final choice. There's much more to the subject than speed. There are myriad interlinked considerations, from the way a modem links up with the telephone line, to the question of so-called intelligence – all of which need to be taken into account in trying to determine the best buy for your needs, present and future.

For the sake of clarity, I'm going to break the problem down into manageable chunks.

Some of the factors depend on others, but for the moment I'm going to forget that interdependence and consider each one as a separate entity.

Most modems are connected directly to the telephone line with a standard BT plug. But there are some which are designed to send their high and low tones via a handset.

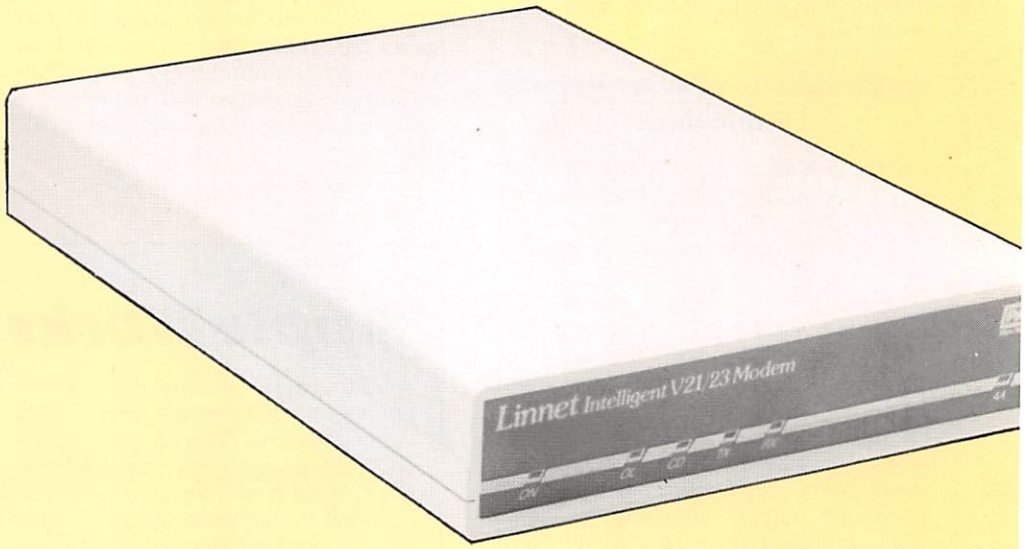
They are called acoustic couplers, and have two rubber cups into which you place the part of the phone you normally hold up to your ear and mouth. They are not usually suitable for anything but the old, standard shape of BT handset.

Acoustic couplers are often run from batteries, and can be useful for people on the move who may, for instance, have to send data down the line from public call boxes. But they give less reliable results than the wired-in variety.

So, given that the Apple is not the most portable of machines, you should avoid an acoustic coupler unless there are special reasons for choosing one.

It is illegal to connect an unapproved modem to the public telephone network. In the past, the problem for modem manufacturers has been that the process of getting approval by the British Approvals Board for Telecommunications has been difficult and long-winded.

The situation has improved recently, but there are still a number of models on the market waiting for approval – and even some for which approval has never been sought. Approved models carry the British Telecom "green spot".



RS232 interface

The vast majority of modems have an RS232 (serial) port, from which you can run a standard cable to an interface card in the Apple.

As far as I know, all countries except the USA have adopted the standard Transmit and Receive frequencies laid down for modems by the International Telegraph and Telephone Consultative Committee (known by its French initials: the CCITT).

The USA has its own standards which have been defined by the Bell Telephone Company, and the frequencies it uses are known as Bell tones.

If you want to access American bulletin boards, you need a modem which can switch between CCITT frequencies and Bell tones.

However, if you're a member of Micro-Link you can go directly on to the Mnematics bulletin board in New York without worrying about Bell tones.

In contrast to the USA being out on a ▷

climb when it comes to frequencies, it has managed to set a world-wide standard (though in this case an unofficial one) in the commands sent from micro to modem. This command set was originally developed in the USA by the Hayes Modem Company for its own model, the Hayes Smartmodem.

A modem is said to be Hayes compatible if it responds to Hayes commands. These consist of the letters AT (ATtention) followed by one or two further letters and an optional number. So, *ATD456789* means "Dial 456789".

The Hayes command set is complex – it contains instructions to control just about every aspect of modem communication, from setting the loudness of an internal speaker to obscure technical commands such as "Transmit carrier attenuation level".

For the most part, the Apple owner need not be bothered with the more esoteric Hayes commands, and in fact need not be bothered about Hayes compatibility at all. Its only advantage is the insurance that a Hayes compatible modem will work with any computer, running virtually any communications software. So if there's any chance of your changing your Apple for another machine, or of moving your modem from one machine to another, it's worth having.

Intelligence

I think it was the Hayes Smartmodem which gave us the phrase "smart modem" (or maybe it comes from "smart" and "dumb" terminal emulation – that subject is for later in this series).

Whatever the origin of the terms, it's a fact that some modems are smarter than others (more intelligent, that is – not necessarily carrying Design Centre Award labels).

"Smart" in the context of a modem normally means it has its own little processor which at the very least allows it to dial a telephone number automatically (auto-dial), and at best to do all kinds of automated things such as answering the phone when you're not around (auto-answer).

Auto-dial is something every user should regard as a major consideration. It makes life so much easier when you don't have to go through the process of dialling manually and pressing buttons on the modem to hook up to a carrier (a signal sent by a remote modem to indicate the phone has been answered).

Many auto-dial modems also come with an auto-detect system which senses the speed of a remote carrier and automatically adjusts its own speed to fit, as well as being able to detect an engaged tone and to re-dial after a given period of time.

On the other hand, the advantages of auto-answer modems are not so clear-cut.

If you intend, say, to run your own electronic bulletin board, or to set up a system at the head office of a company which enables employees to send in data when there's nobody there to receive it, the choice is obvious. If not, you could be wasting your money.

Having said that, future requirements must always be borne in mind. I'm a great believer in allowing plenty of room to expand, and the modems I'll be recommending are auto-answer.

A related facility, necessary for connecting two micros over the telephone line, is the ability for one of them to go into Answer mode (the opposite of Originate mode). Not all modems can do this – in fact the facility is lacking in the Hayes Smartmodem itself (which costs over £600).

More about speed

Here I have to introduce a new concept, and a new term – duplex. There are two main duplex modes: Half and full. Half duplex means that data can only either be sent or received at any one time. Full duplex means that data can move in both directions simultaneously, therefore offering savings in time and money.

Nearly all modems use full duplex mode at 300/300 baud (the CCITT name for this protocol is V21) and 1200/75 baud (V23). But, for technical reasons, 1200/1200 full duplex (V22) sends the price of modems soaring.

If your communications requirements are weighted towards sending and receiving lots of files, I would advise against too many trial runs with 1200 full duplex on somebody else's modem – unless you're sure you can afford one of your own. You'll have been spoiled by the time you go back to 300/300 or 1200/75.

Taking into account all the factors outlined above, and adding in the question of price, there are two modems I would recommend as very good buys for the Apple owner.

Both are BABT approved; can handle Bell tones; are Hayes compatible; have auto-answer/auto-dial facilities; and offer a choice of 300/300 or 1200/75 baud. My first choice, however, can also be upgraded to 1200 and even 2400 baud full duplex, and it's that elasticity which for me has tipped the balance between the two.

Top of the ladder in my opinion, then, is the Miracle WS4000 V2123 at £169.95.

My second choice is the Pace Linnet at £139. There's a saving to be made here of £30 over the WS4000, and basically all that is missing is the possibility of an upgrade to 1200 full duplex. If you're really not worried about that, you won't be disappointed with the Linnet. □

AppleUpdate

AppleWorks extras

THERE are seven new AppleWorks enhancements from the Beagle Bros Timeout series. Timeout Graph turns your spreadsheets into great looking graphs from inside AppleWorks.

Superfonts gives you Macintosh fonts with proportional spacing, and a range of size from six to 127 points.

This program comes complete with a high quality print mode and 50 per cent reduction. A choice of styles is also available – bold, italic, underline, shadow, outline, subscript, superscript and negative, with a good variety of fonts.

With Quickspell you can check even large documents in seconds. The program also suggests spellings as well as finding and correcting double words. In addition there is a 80,000 word Random House Dictionary.

Ultramacros gives your Apple over 50 programming commands and an intelligent macro compiler. There is also a special key-lock for the handicapped.

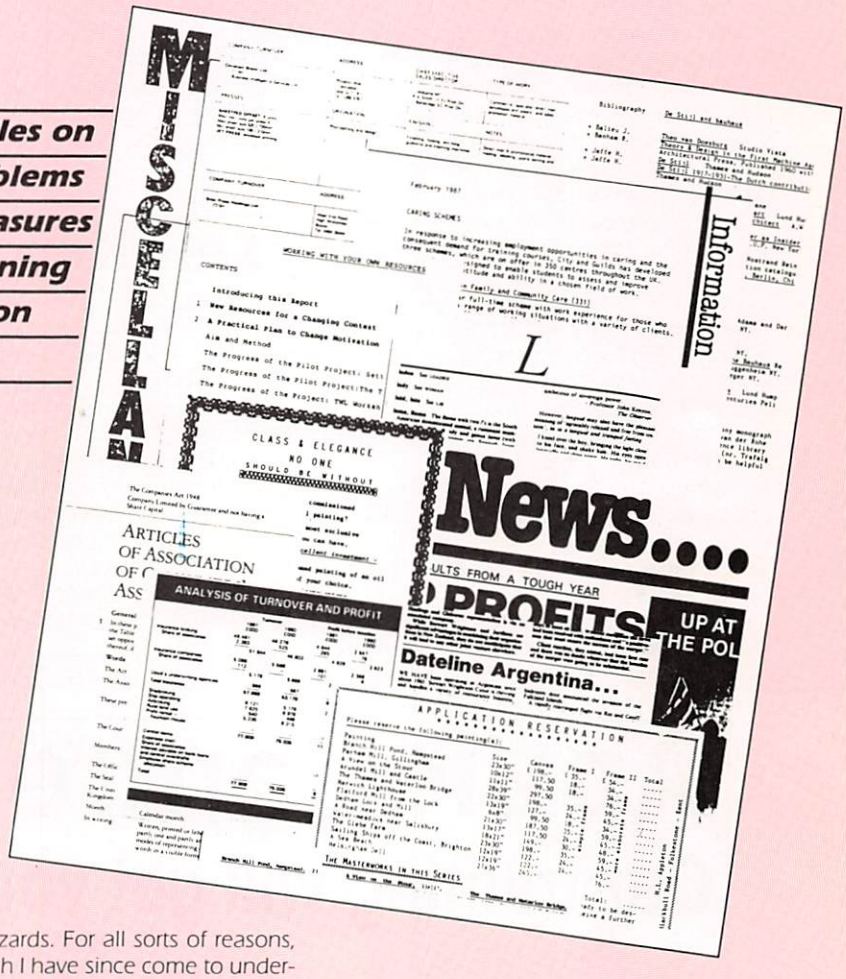
Sidespread is a no limit size spreadsheet with many fonts and sizes, while Filemaster gives you total control over files and discs.

Desktools gives you a range of desk acessories: Calendar with appointment scheduler and task list, calculator, notepad, dialer, envelope addresser, clock, clipboard converter, file encrypter, case converter, page preview, word count and a puzzle.

Products and prices: Graph (£63.95), Superfonts (£56.95), Quickspell (£44.95), Ultramacros (£42.95), Sidespread (£35.95), Filemaster (£35.95), Desktools (£35.95)
Supplier: Diamond Software, Clayton Holt End, Underhill Lane, Clayton, Hassocks, West Sussex BN6 9PL.

Learning on the hoof

John Miles on the problems and pleasures of designing a book on the Mac



AS a typographer and graphic designer, I believe that the principles and precepts of good typography and graphic design are the same for the micro user as they are for the professional printer or designer – the techniques may change but the human eye and habits of perception do not.

I therefore set out to write a beginner's guide to typographic design which, although aimed at the computer user, enshrined the results of my own experience as a practicing designer of print for over 30 years. This is a brief outline of how I came to do it – and of some of the pleasures and hazards I found on the way.

A couple of years ago a publisher, specialising in books on graphics, asked me to write a book. "There is nothing", I said, "that I could write that anyone wants to hear... but if you want an *idea* for a book, get someone to write a design manual for all those people who are equipping themselves with PCs and laser printers".

He looked sceptical. "If you think that's a good idea you do it, but I think you should produce it on a PC". So with the cash advance I went out and bought myself a second-hand Apple Mac, relying on a friend with a laser printer to see what I was producing.

The only program available to me at that stage was MacWrite. But that didn't really matter – I was far too busy planning the book and getting my thoughts in order to worry too much about the niceties of page planning.

In fact learning on the hoof had its advantages. It enabled me to appreciate the problems of design and layout on the Mac as they appear to a complete novice.

If I had started writing the book with as much experience as I have now I would probably have assumed too much knowledge in the reader and failed to spell out some of the difficulties which were all too clear to me in the early stages.

My early experience on the Mac convinced me that we needed another one – with rather more facilities – in the design studio. So we added PageMaker, MacPaint and MacDraw, and bought a LaserWriter. This meant I could start making a real book out of the material I was assembling.

Once I started to use PageMaker my lack of formal training became uncomfortably obvious. So I sent myself on a two-day course at Bournmouth College of Art. This was enormously valuable, not least because I had two days to sit in front of the keyboard and think of nothing else.

Even so, assembling the pages was fraught with hazards. For all sorts of reasons, some of which I have since come to understand, pages would lock on me or that ominous little bomb would appear accompanied by some cheery message which meant another wasted Saturday afternoon. There were some things I learned very quickly – not least saving to disc regularly. The day the kettle blew a fuse and blacked out the entire house ensured that.

In designing the book I kept three precepts in mind:

- Never forget the reader and what he or she wants to get out of the book.
- Organise the text so that readers can find their way about easily.
- Keep it simple – use embellishment as a guide not as decoration.

I therefore used a layout of three-column of 13 picas which, on an A4 page, left me enough back margin to take the wire binding I wanted to use. This type of binding ensures that the book always lays flat and keeps the feeling of a manual.

With a page depth of 62 lines of 12 point I established a horizontal grid of 7 panels, 8 lines deep with 1 line space between each [(7 x 8) + 6 = 62]. I also allowed plenty of room for white space.

The typeface was 10 point Times: I chose 10 rather than 12 point because it gave a more comfortable reading length over the relatively narrow three-column measure. As it is in fact assembled on a 12 point body it also had the benefit of 2 points of interline space at auto leading.

I assiduously avoided any unnecessary embellishment – no drop shadows or initial letters. Such devices would have done nothing for my text and might well have added to the confusion. I did however allow myself the occasional cartoon, and rules and boxes where they augmented the sense of the text.

I was allowed two printings (black and one colour) but I restricted the second colour almost entirely to captions and some rules. This allowed me to use the same size of type for text and captions, which ensured good alignment of lines across pages.

If all this sounds a bit austere I make no apology. That's the way I think the most satisfactory designs are achieved: Maximum regard for the text and the minimum of typographic pyrotechnics.

Although the text was assembled on PageMaker the illustrations became a mix- ▷

◁ ture of MacDraw and hand-drawn artwork. This was partly because I was not entirely satisfied with the precision of the output for certain charts and plans and partly because, already having the manual skills available, it was in fact quicker and more accurate to have some of the illustrations produced on the drawing board while I assembled the text on the screen. By this time the publisher had become more enthusiastic and wanted camera-ready artwork yesterday.

Camera-ready artwork too needed some hand work to get alignments right and some adjustments in spacing. Again I make no apology for this. If the machine isn't capable of achieving the standard you want, use something else. There is nothing sacred about them. There is a time to use a saw rather than a chisel and there is a time to use a scalpel rather than a keyboard.

Whatever you get off the LaserWriter is going to be in some way degraded when it is either copied or printed. I therefore made the final printout for artwork on blade coated cartridge and spent some time explaining to the printer that he was having to deal with low resolution typesetting. The printer took particular care over the camera work so that the type appears in the book to be of an unusually high quality for LaserWriter output.

Looking back, I think only someone who knew next to nothing about using a computer would take on such a task. The individual operations – writing, illustrating, typesetting and preparing camera-ready artwork – are each manageable by one person. But when one individual takes on all of them more or less single handed the responsibilities become daunting.

I was blessed – or perhaps cursed – by a very good editor who corrected my spelling and pointed out inconsistencies. But I loathed having to go back to the keyboard and make all those corrections every time a set of proofs came back. Bring back the typesetter I thought, and let him worry about it.

Now we have three work stations in the studio with PageMaker 2, Ready Set Go, Microsoft Word and drawing programs up to the level of Cricket Draw. We also have a wide range of typefaces including downloadable fonts.

Would I approach the book differently if I were beginning it today with all the equipment and two years hard won experience behind me? Probably not. The chances are I wouldn't even start.

The result of all this effort is called Design for Desktop Publishing, published by Gordon Fraser at £9.95

AppleUpdate

Sensible choice

SENSIBLE Writer gives you an option for your mouse and your Apple.

This is a word processing package which allows you to display two documents simultaneously on your screen. It features pull-down menus, scroll bars and formatting rulers.

This program also allows you to see on the screen exactly what you will print out, including boldface, underlining, and page breaks.

In addition Sensible Writer can read and write to AppleWorks word processing files and comes with a built-in mail-merge capability.

Program: Sensible Writer
Price £103.50
Supplier: MGA Microsystems, 140 High Street, Tenterden, Kent TN30 6HT.
Tel: 05806 4278
Requirements: Apple IIe Enhanced, IIc,IIgs with 128k ram and 5.25in or 3.5in disc drive. ProDos 8 also required and the Apple-Mouse is recommended

□

The Desktop Publishing Awards, 1987, sponsored by Pira, attracted a host of Apple users. Ian Byfield looks over a few of the entries

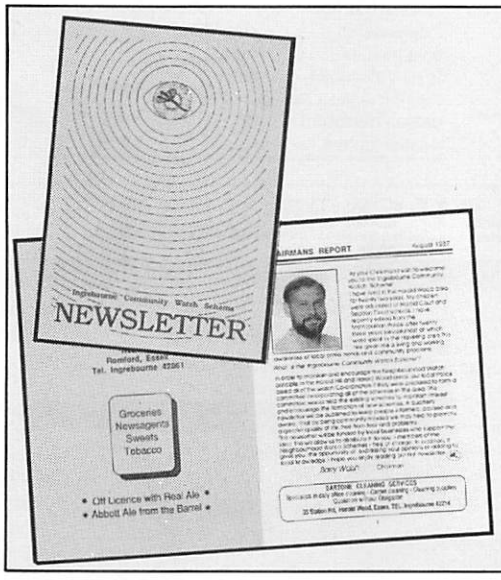
Desktop detective

DIRK Gently's Holistic Detective Agency, the latest comedy novel from best-selling author Douglas Adams, was produced on an Apple desktop publishing system.

Indeed, he produced camera-ready copy for the American version through MacAuthor which was output to a LaserWriter at 138 per cent enlargement. Photo reduction then produced improved resolution of 400 dots per inch instead of the usual 300.

In Britain, Heinemann says it cut five weeks out of the production process by taking the MacAuthor copy and putting it through a Linotronic 100 laser typesetting machine.

Adams describes the novel, which is already a hit in the US as a "detective horror-whodunnit, time-travel, romantic-comedy which pokes fun at the computer industry".



Crime prevention

A MACINTOSH is playing its part in crime prevention in an area of Essex – The Ingrebourne Community Watch Scheme Newsletter is an A5 quarterly publication.

Editor William Trubridge uses MacDraw and Write Now on the Macintosh, plus a LaserWriter to prepare material for pasting up.

He designed a cover incorporating ever-decreasing circles, an eye and the Magpie symbol used in crime prevention advertising.

The newsletter was born out of a plan to bring a number of neighbourhood watch schemes in the Harold Hill and Harold Wood areas together under one umbrella.

The local police asked all the watch coordinators if they were prepared to form a committee incorporating all the schemes in the area. The idea was to maintain interest in existing schemes and encourage the formation of new ones.

The group agreed that the best way to keep people informed, advised and aware was through a quarterly newsletter, and that the best way to produce the publication – which is funded by local business and advertising revenue – was through desktop publishing.

Camera-ready magazine pages

THE use of DTP has enabled staff at 8000 Plus magazine to be more adventurous, ambitious and efficient in the production of their publication, says editor Ben Taylor.

"Using DTP has added a whole new vitality to the look of 8000 Plus", he says. "Being able arbitrarily to condense or expand text gave us the chance to improve the design of the magazine over its pre-DTP days – such as stretching headlines to fit the space available.

"We have also been able to use tinted squares for individual ratings blobs on reviews which would be virtually impossible with traditional techniques".

The magazine is written on Amstrad PCWs using a Protext word processor, and generally subedited in that format.

The Public Domain program MakeWrite is used to transfer files in MacWrite format to Macintosh SEs with 20Mb hard discs and Prodigy booster boards. These files are readable by Quark XPress, which means textual markers can be embedded by writers rather than later on in the process.

For output they use a LaserWriter Plus for proofing and a Linotronic 100, via a Raster Image Processor for the final version.

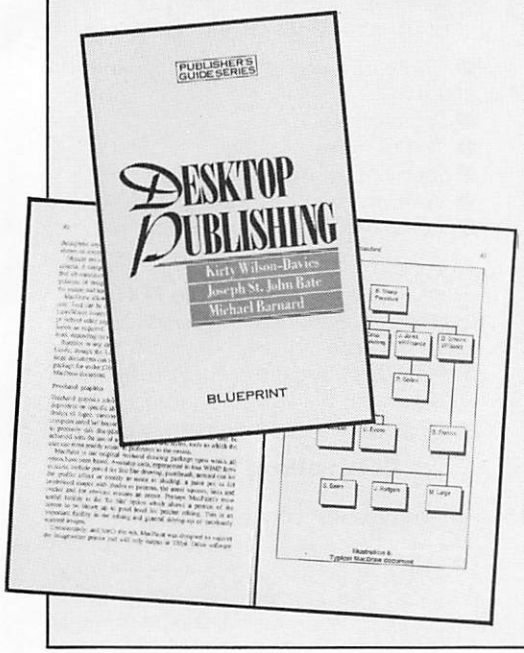
Text is then cut and pasted on to XPress page template grids. The Linotron produces pages complete with all column and box rules, folios, simple line diagrams, reversals, top tint bars and such. This means that some pages are totally camera-ready.

Old business, new direction

DESKTOP publishing is not only the method by which Blueprint of London produced a full length casebound book – it is the subject of it as well.

As part of the the Publisher's Guide Series, Desktop Publishing by Kirty Wilson-Davies, Joseph St John Bate and Michael Barnard, was produced with the aid of a Macintosh Plus, a LaserWriter, MacWrite and PageMaker.

In the introduction, the authors define desktop publishing as "the old business of setting type, making up pages and printing the output, but approached from a different direction".



They go on: "The term is a misnomer, but we appear to be stuck with it".

The text for the book was input from a variety of sources – a Hewlett Packard HP110 portable with files transferred via HP-Link, a Compaq Deskpro PC and an IBM portable running Wordstar, and an Apricot single-floppy F1 running Superwriter.

The transfer of files from the Compaq and IBM to the Macintosh was achieved "remarkably effectively" using PC to Mack and Back or MacLink.

The Apricot files were apparently less simple: "We initially transferred using Apricot's Asynchronous Communications software into IBM format", says the introduction.

"The problem of enabling WordStar to read Superwriter files was overcome by an astute technical adviser and a small Basic program. "The resulting Wordstar files were then downloaded to Macintosh".

All editing and a "significant" amount of text entry was performed on the Macintosh, which was also employed for composing the pages using Pagemaker 1.2. The diagrams were drawn on a Macintosh using MacDraw

Campus communications

WHEN students at Reading University want to know what is going on, they refer to the latest example of the campus's desktop publishing.

The University Diary is produced six times per session by one student and prepared on a Macintosh using MacWrite, MacPaint and Pagemaker.

Proofs are produced on a laser printer before the final work is typeset on a Linotype Linotronic 300, via a PostScript Raster Image Processor.

Apart from being used to design the decorative cover, desktop publishing aids the production of the leaflet because it eases the job of ensuring that the complicated listings are accurate.

The Diary is just part of the Department of Typography and Graphic Communication's Desktop Publishing facility.

Keeping in touch

TENDRING District Council in Essex makes sure that local businesses can keep up to date with what the local authority is doing in the field of economic development through a special newsletter, produced by desktop publishing.

Launched in March 1986, the newsletter, called Partnership, is published three times a year and circulated to 1,500 businesses in the area and to 500 other organisations throughout East Anglia.

Research and Intelligence Officer Mr M.P. Bateson explained that the council's Economic Development Unit is responsible for the publication of the newsletter. Initially it was prepared by traditional methods which took about six weeks to complete.

In April of this year, the Unit acquired a Macintosh 512k from another department and then bought a LaserWriter and Pagemaker – the latest issue of Partnership is the first to be produced using the Macintosh.

Because the typeface used is not currently available in conjunction with the Macintosh, it has not been possible to produce photo mechanical transfers for the printers for this issue. The council hopes that the particular fonts will be available later this year.

"For the July issue, it was possible to draft and edit articles using MacWrite, and design and lay out the publication using PageMaker", explained Mr Bateson. "This draft was then passed to the printers for typesetting and printing.

"While this was the first time the Macintosh was used for this purpose, it was possible to reduce the time spent on publishing the newsletter to three weeks", he said. □

The plot thickens

Geoffrey Jago offers a step-by-step guide to programming a graphics plotter

MAKING paper printouts of graphics via an Apple II is usually done by dumping one of the hi-res graphics screens to a dot matrix printer. This method can produce many spectacular pictures, given a suitable printer, but the resolution is limited by the number and spacing of the available dots. And for really professional coloured graphics a plotter is necessary.

An increasing number of reasonably-priced plotters now on the market are capable of a resolution of 0.1 mm. or better and these are quite easily programmed. Such programming provides a new field of interest and printed results can be most satisfying.

And should your bank manager display heavy-lidded lack of interest in funding a plotter it is not difficult to plug your Apple temporarily into a borrowed machine.

The Apple II is eminently suitable for controlling most plotters and this article gives some details of how to get started based upon my own, square-one-up, experience.

Although specific plotters may also understand their own languages, most machines will read the Hewlett-Packard Graphics Language, so HPGL from Basic is used in this article.

For example, Roland Plotters understand the Roland DG Graphic Language which is compatible with HPGL.

Plotters are controlled from Basic by PRINT statements and those familar with the use of a printer from Basic or other languages should have little trouble in talking similarly to a plotter.

Basic requirements

You will need a parallel or series interface card and connecting plugs just as is required to drive a printer. In fact your printer interface may work by merely transferring its plug from the printer to the plotter, but for serious use a separate interface is advised to avoid unplugger's elbow.

A plotter's card is usually placed in slot 2 on an Apple II, just as slot 1 is the convention for a printer. In the same way as you enable a printer interface from Basic by PR#1, the plotter can then be enabled by PR#2. In both cases PR#0 switches off.

Many plotters are capable of sending data back to the Apple and such two-way conversations can be most useful – for instance you can digitise drawings by moving the pen and storing the data in the computer, or can measure areas from plans.

When buying a plotter it is important to find out if two-way working is possible because one day you'll probably wish to use this facility. A point to note is that to do so you must have a suitable series card – RS 232 code is the norm – because parallel cards can't talk back.

Consult the manuals of the series card and the plotter so that both are set to the same speed of data transfer – The supplier and your nearest modem fiend will advise. It is good practice to buy both plotter and interface from the same source so that you can ensure they work well together with your Apple.

Assuming your plotter card is installed in slot 2, once PR#2 is sent from within a Basic program, all text or data following a PRINT command goes to the plotter. But only PRINT instructions will be sent, so that interleaved Basic lines devoted to loops, calculations and the like will be obeyed by the Apple while leaving the plotter unmoved.

This is much the same as the procedure within Basic for sending text to a printer– a method with which most users of printers will be familiar. So when writting PRINT instructions for a plotter it helps to look at your program with printer instructions in mind. From this you will gather that plotter commands have to be contained within quotes.

HP Graphics Language contains about 50 commands, taking the form of two uppercase letters followed, in most cases, by numbers appropriate to the particular command, followed by a semicolon to tell the plotter the command has ended.

For example, if you want the pen to move to a point defined by 100 units along the X axis (to the right) and 200 units up the Y axis the Basic line is:

```
PRINT "PA100,200;"
```

Note that: The X and Y values must be separated by a comma, that a semicolon ends the command and that nothing separates PA from 100.

In many cases the semicolon can be omitted without ill effect, but it is good practice to leave it in because plotters are easily baffled and seem to love flashing error signals unless all is perfect.

HPGL commands fall into six groups:

- Those devoted to setting up (initialisation).
- Pen controls.
- Text or symbol setting.
- Special drawing commands.
- Scale and window setting.
- Commands asking the plotter to send data to the Apple.

Initialisation commands like PRINT "IN;" require no additional numbers and are used to cancel any special settings previously set in them plotter's memory.

Controlling the pen

Pen commands control pen movements and whether the pen should be down (drawing) or up (moving to a new starting position). The pen can be moved to an "absolute" postion such as the PA example given above (PA stands for Plot Absolute) when the numbers are distances from the zero – zero position at the bottom left of the drawing area.

Alternatively PR (Plot Relative) will send the pen on a given diagonal defined by X and Y distances from its current position. With several other commands you also have the choice of Absolute and Relative modes and when to use one or the other will depend upon the nature of the program.

Once PA or PR is used the pen will move "absolutely" or "relatively" via the PU (pen up) or PD (pen down) commands until told to do otherwise.

If the plotter sports more than one pen, the command **SPn;** will cause pen number **n** to be used. **SPO;** will cause the pen in use to be lifted and the plotting arm will return to its home position. Where pens are picked up as required from clips, the current pen is first returned to its correct clip when **SPO;** is invoked.

The command **LTn,m;** will define many different types of dotted, dashed or pecked lines. With some pens you may need to slow down the plotting speed and **VSn;** does this job.

You will want to add text to most drawings and there are many commands to control the size, height, width and slant of

the letters as well as the direction or slope at which they are drawn. If none of these is defined, a level default text is used.

To write on the drawing you send the pen to the required starting position and use the **LB** (for Label) command. **LB** has a special kind of terminator. The following line would send the pen to X = 100, Y = 200 and print Drawing Title:

```
PRINT "PA100,200;LBDrawing
Title";CHR$(n)
```

CHR$(n) is a terminator which tells the machine to stop writing text, where **n** depends upon the machine used. If you omit this from an **LB** command the plotter will blithely continue to write out much of the rest of your program right across your masterpiece.

Note from the above the placing of the quotes, and note also that two or more commands can be contained within a single set of quotes provided they are seperated by the normal semicolon.

Plotting symbols instead of text is also possible – useful for overlaid graphs – their shape being selected from a number contained in the plotter rom, or you can define special shapes.

Moving on to the special drawing commands, a number of useful aids are catered for in HPGL. They include the automatic drawing of rectangles, circles, arcs, lines with ticks for graphs and cake slice shapes for pie diagrams.

These shapes can be drawn in outline and then neatly hatched or shaped in many different ways. In each case the two command letters are followed by numbers defining angles and relative or absolute distances. The instruction book and experiment will show the new operator how.

Scaling of drawings or parts of drawings is a very useful facility provided by the command **SC xmin,xmax,ymin,ymax;** It is sometimes useful to define a drawing window outside which the pen is always up. This is rather like covering the drawing with an overlay with a hole in it.

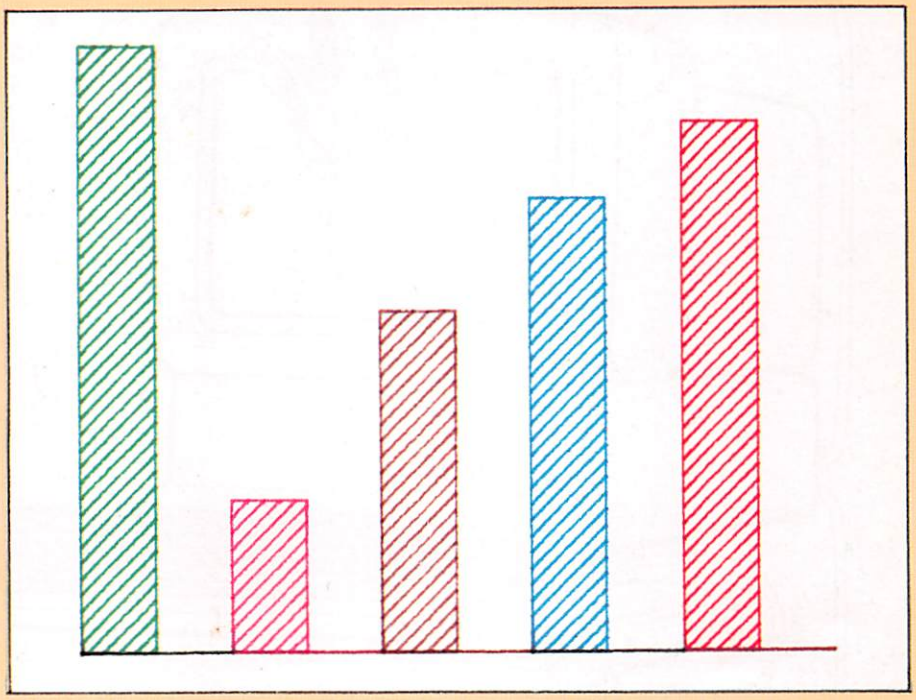
Plotting can go on without error signals over a wide area, but the plotter will only mark the paper within the defined window. The command **IW** followed by two X coordinates and two Y coordinates does the job.

If you wish to make the plotter think that its normal working area is smaller than the whole platen, or narrower on one axis, the command **IP** is used.

Finally, if you have a series interface, you can ask the plotter to give you information on such items as where the pen is and whether it is up or down. The machine can also be quizzed for useful debugging data so that programming errors may be identified.

Can you mix variable data with plotter commands, as is often done in printer commands such as this?

```
PRINT "THE SQUARE ROOT OF "; N ;"IS ";T
```



```
100 REM SIMPLE BAR CHART PROGRAM TO D
EMONSTRATE PLOTTER COMMANDS
110 REM (C) 1987 G.JAGO
120 DIM H(30)
130 SP = 800: REM SPACING BETWEEN BAR
 CENTRES
140 X = 400: REM STARTING POSITION
150 N = 5: REM NUMBER OF BARS
160 P = 0: REM INITIALISES PEN NUMBER

170 H(1) = 3200:H(2) = 800:H(3) = 180
0:H(4) = 2400:H(5) =2800: REM ASSIGN
BAR-HEIGHT DATA TO H ARRAY
180 HOME : PRINT "SENDING INSTRUCTION
S TO PLOTTER": REM MESSAGE TO VDU ONL
Y
190 PR£ 2: REM SWITCH ON THE PLOTTER
INTERFACE CARD
200 PRINT "PA"X","Y";": REM MOVE PEN
ABSOLUTELY TO X,Y START POSITION
210 PRINT "SP3;":REM SELECT PEN NO.3

220 PRINT "PD"X + (SP * N)", "Y";": R
EM DRAW BASE LINE
230 PRINT "PA"X","Y";: REM RETURN TO S
TART POSITION
240 PRINT "FT3,60,45;": REM FILL TYPE
-DEFINES TYPE, SPACING AND ANGLE OF H
ATCHING
250 FOR J = 1 TO N
260 P = P + 1: REM P CONTROLS PEN NUM
BER _ SELECTS NEXT COLOUR
270 PRINT "SP"P";": REM SELECTS PEN N
O. P
280 PRINT "ER"(SP / 2)","H(J)"]": REM
 DRAW OUTLINE OF RECTANGLE (BAR) FROM
 CURRENT PEN POSITION RELATIVELY TO S
P/2,H(J)
290 PRINT "RR"(SP / 2)","H(J)";": REM
 HATCH THE BAR
300 PRINT "PA"X + (SP * J)","Y";": RE
M MOVE PEN ABSOLUTELY TO START POSITI
ON FOR NEXT BAR
310 NEXT
320 PRINT "SP0;": REM REPLACE PEN AND
 SEND ARM TO HOME POSITION
330 PR£ 0: REM SWITCH OFF THE INTERFA
CE CARD
340 END **** END ****
```

Program I:

The answer is that you can, although the positioning of the quotes can occasion hair loss in the beginner. The thing to remember is that the command letters, commas, constant numbers and semicolons must lie within the quotes, but the variables must lie outside.

Take the case where you are drawing lines using the PD (pen down) command while the program is controlling pen movements via two variables X and Y. The correct syntax is:

```
PRINT"PD" X "," Y ";"
```

Here PD and the punctuation are all within quotes, while X and Y are outside. If X = 100 and Y = 200 what the plotter "sees" is:

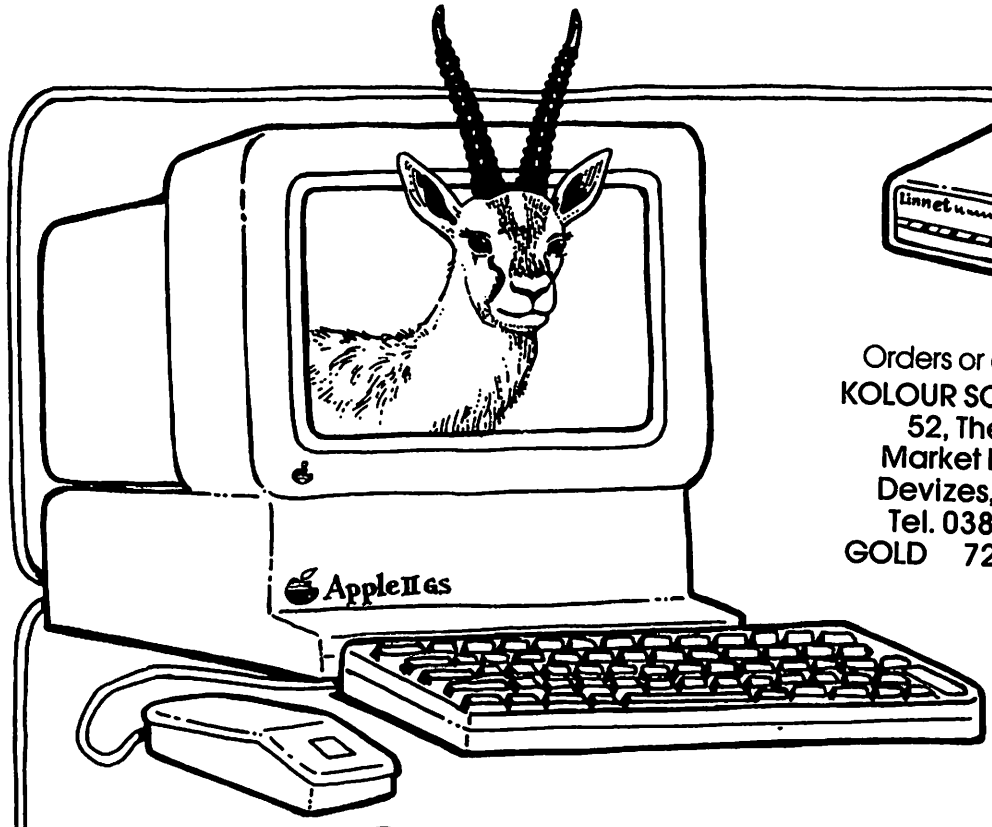
```
PD100,200;
```

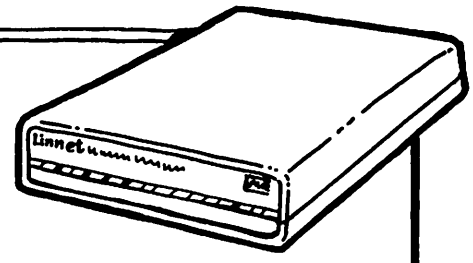
and happily carries out the instruction.

The following method using string variables is also possible:

```
p$ = "100,200;"   :   PRINT "PD" P$
```

Program I is a short one to demonstrate the use of some commands. It controls a plotter to draw the simple bar chart shown and each line is explained by REMarks. Later articles will show how to enhance the chart as well as some methods of drawing other diagrams. □





Orders or enquiries to:
KOLOUR SOFTWARE LTD.
52, The Spring
Market Lavington
Devizes, SN10 4EB.
Tel. 0380 818667
GOLD 72:MAG20610

GAZELLE

Communications Software For The Apple //

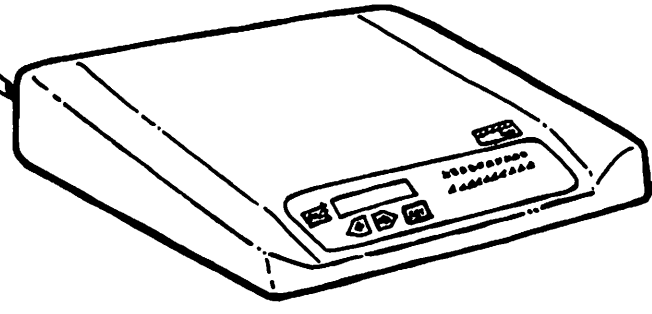
- Written by Ewen Wannop, author of Data Highway.
- Viewdata (Prestel) and Ascii modes.
- **New!! On-line colour Viewdata display for GS version.**
  Still priced at £86.25 (£63.25 with trade in).

SPECIAL OFFERS

Kolour Software can offer massive savings on modems bought with Gazelle software. For example, the Pace Linnet is an intelligent, speed buffered modem offering 300/300 and 1200/75 baud rates and auto-dial/auto-answer facilities.

	OFFER	NORMALLY
Gazelle, Linnet and Cable	212.75	273.70

Please call for details of other modems.



All prices INCLUDE VAT and carriage

Get on the right stack

Chris Payne looks at HyperCard, Apple's innovative new software package

HYPERCARD is one of the most exciting new products to appear for the Apple Macintosh and is destined to have a major impact on sales of the Mac and on the software market which supports it.

Such is Apple's confidence in the package that every Mac sold from now on will include a copy of HyperCard – and current users will be able to buy it for themselves for only £35.

So what is Hypercard? The program has been developed over a period of three years by a team of programmers headed by Bill Atkinson, designer of MacPaint. He describes it as "an authoring tool and information organiser" which allows you to store information in words and pictures and link any piece of information with any other.

With it you can create your own application for gathering, organising, presenting, searching and customising information.

Information appears as cards which take up the full size of the Mac's standard screen, and these can contain both words and pictures. Cards can be grouped with other cards to form "stacks" which often share the same look and can contain similar information. You can use "links" to tie related information together, and a single mouse click can take you to just what you're interested in – whether it's in the same stack or in any other.

To use HyperCard you will need a Mac with at least 1Mb of ram and two drives, but it works best with a hard disc drive. The HyperCard package consists of the program disc, two further discs containing Help and Ideas stacks, and a thick ring-bound manual.

Product: HyperCard
Price: £35 (free with every new Mac)
Supplier: Apple Computer UK, Eastman Way, Hemel Hempstead, Hertfordshire HP2 7HQ.
Tel: 0442 60244

The first thing I did was to copy all the files on to my Macintosh SE's hard disc – there is no copy protection. Using the Get Info option from the File menu I found that the core program takes up 360k, and the various stacks take up between 7 and 577k each.

Figure I shows the HyperCard icon and the Idea Stacks folder open to show the five stacks within it. When you double click on the HyperCard icon the Home menu appears (see Figure II). The Home Card contains the title, the current time and a number of Buttons – areas on the card which, when pressed using the Browser tool (represented by the pointing hand) perform an action.

Browsing route

The two arrows take you backwards or forwards through the Home stack, while pressing one of the 19 other Buttons will take you to a completely new stack containing the information you requested. If you are uncertain which parts of a card represent buttons, you can press the Option and Command keys together to highlight all the available buttons on the current screen.

Before you know it, you will be browsing through the stacks, jumping from one to the other chasing more information on a particular topic, or following a completely new item. If you want to retrace your steps to follow another angle you can press the tilde (~) key to take you back to the previous card, and keep pressing it until you arrive at the required card.

But a better method is to call up the "Recent" option from the Go menu (or by pressing Command+R) to show the last 42 cards which you have seen (see Figure III). Each card is displayed just once – even if you revisited it many times – and the most recent unique card is at the bottom right.

Adding graphics

You can return to any of them by simply clicking on the miniaturised Button which has been created. The Go menu can also enable you to go back to the Home Card – or you can use Command+H.

Adding a new card to a stack can be as simple as selecting New Card from the Edit menu, or pressing a Button – if one is available (see Figure IV). You will be presented with a blank card in the same style as the other cards in the stack. The Browser tool turns into an I-beam as you move it over areas set aside for text and you simply click on a field to enter text there.

Graphics can be added by using the paste facility or created from scratch with the powerful tools at your disposal. This MacPaint-like utility can be called up from the Tools menu, "peeled off" the menu by ▷

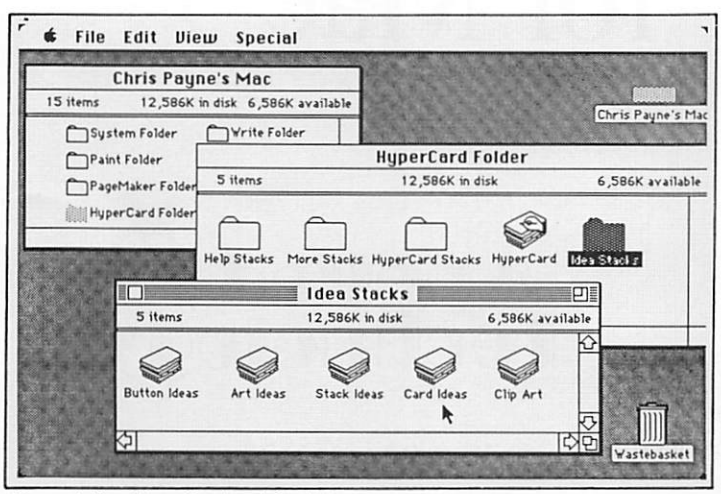


Figure I: The HyperCard and Stack icons

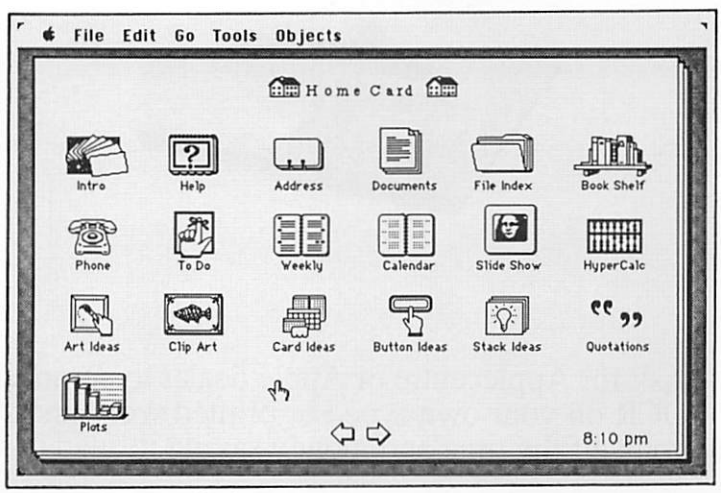


Figure II: The Home Card

Text on paper ?
Get it into your Mac

This is technically called O.C.R., which stands for
Optical Character Recognition

Optical in that the hardware (an image scanner) "looks" at the page of text
Character in that it sees the picture of each character and analyses it
Recognition it learns & recognise font types and you build up a library store

You can now take your printed sheets (laser, daisy-wheel, dot matrix etc) and scan them. The system will automatically analyse it and translate it into real text, then use it in your word-processing or dtp package just as normal "typed-in" text !

Our OCR System comprises :
Datacopy Model 730 Flat bed image scanner
OCR self-teaching software (for text capture)
Datacopy MacImage software (for graphics capture)
Silicon Beach's "Superpaint" software (for graphics editing)
High speed SCSI interface for direct connection to MacPlus or Mac SE

Complete OCR system £2994 + VAT

OCR
for Mac

Applied Technology

Ask for Applecentre or Apple dealer to demonstrate OCR on your own typed or printed work and see for yourself the time and money saving instead of re-keying

0642-225854

◁dragging, and placed anywhere on the screen.

Double clicking on the Paintcan icon produces a selection of fill patterns for you to use. Power keys allow you to darken or lighten a selected graphic, draw lines and so on from the centre of the card, draw repeated images with a selectable spacing and line thickness, and much more.

You can add Buttons to take you to other cards or launch an application (like MacWrite) – or even add new fields. Each button, field, card, background and stack has a "script" which you can edit. This script, written using the in-built language HyperTalk, describes what actions should happen in response to the user's messages. Figure V shows the script for the Home Card.

The language is very English-like in its vocabulary and syntax, so scripts are actually readable – unlike listings in C, for example. It has been specifically designed so that even non-programmers will be able to get to grips with it.

There is little explanation of HyperTalk in the manual – but there is a great deal more in the Help stack which contains nearly 800k of cards, including a detailed reference guide to HyperTalk. One of the most fascinating cards is the map card (see Figure VI) which not only shows the structure of the Help section, but also your position within it. The stack also includes a detailed index, glossary of terms, and a powerful search facility.

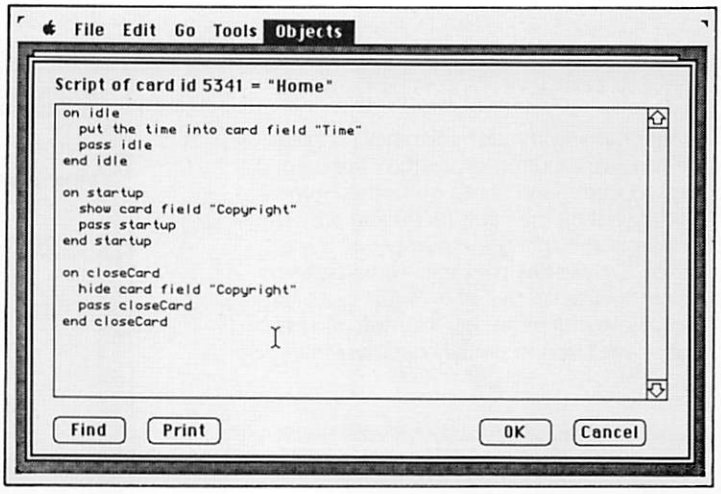


Figure V: The script for the Home Card written in HyperTalk

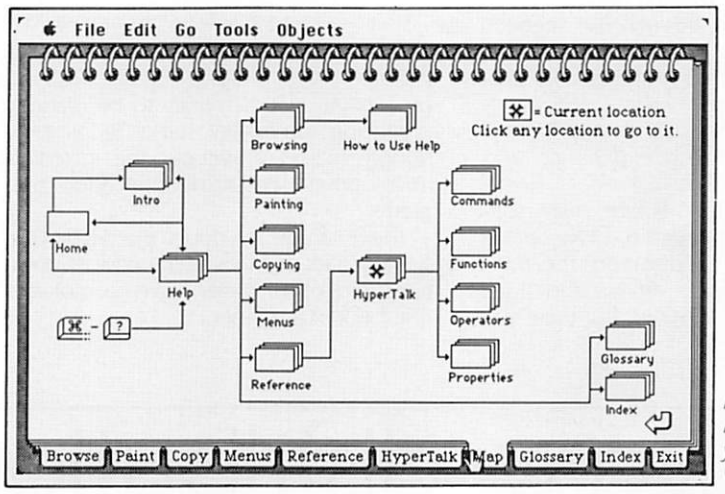


Figure VI: The Help menu, highlighting your current position with a flashing X

Clip art on tap

For anyone interested in creating their own applications, HyperCard is a delight to use. The Ideas stack is full of useful suggestions, and there is a wealth of clip art and loads of Buttons for you to incorporate into your stacks.

If you would rather let someone else do the work you will soon see discs of public domain and commercial stacks winging their way across the Atlantic. There will be sophisticated diary and address book stacks with telephone dialler for modem owners, sign language courses, miniaturised encyclopaedias (until CD rom arrives), statistics packages – the list is endless.

Activision has already announced information stacks, Living Videotext is making More HyperCard compatible, and Aldus and other companies are modifying their tutorial files to HyperCard format.

Two discs which Apple sent for review are quite fascinating. The first is called MegaCorp and is produced by some of the HyperCard development team. It portrays a mythical company with details and digitised pictures of all the key staff, maps of the headquarters, how to use the internal phones, company performance graphs and so on.

The other piece of stackware is produced by the US publication Macazine. It uses digitised sound and graphics to publicise the latest issue and includes a telephone ▷

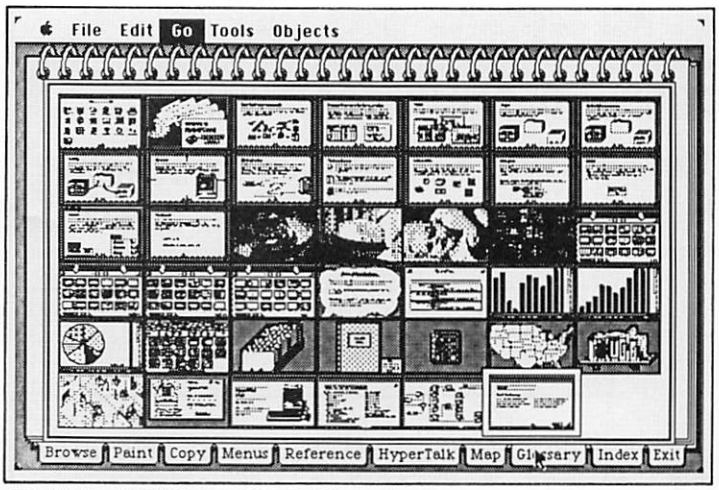


Figure III: Clicking on Go recent produces miniaturised versions of the last 42 cards

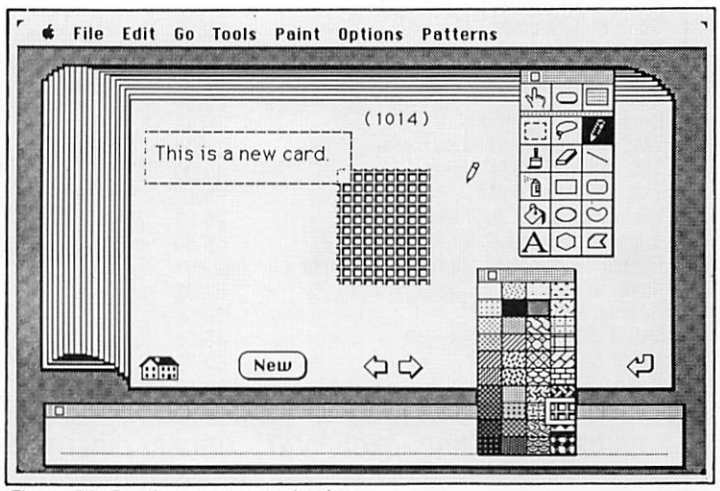


Figure IV: Creating a new card using the mini version of MacPaint

◁ interview, book review, news bulletins and more.

After running through this stack I copied the Macazine button on to the Clipboard, pressed Command+H to go to the Home Card, called up the Tools menu and pasted it into place to bring the number of stacks up to 20. I wish all packages could be this simple to use as this one. It just goes to show how much care Bill Atkinson and his team have taken to simplify database management.

Conclusion

There can be no doubt that every clued-in Mac owner will be getting their hands on this very impressive product. The attention to detail is remarkable, and it's chock full of ideas to encourage as many users as possible to develop their own applications using the tools provided – even if their previous programming experience was negligible.

According to one US source, many software houses are angry at the low pricing which will reduce demand for their productivity software whose functions overlap those in HyperCard. But there will be a great deal of money to be made in producing top-quality stacks for a stack-hungry market – without the incredible development costs of application programs.

There can be no doubt that HyperCard will sell a lot of Macs as the flow of stacks turns into a tidal wave. Apple has got itself one heck of a winner.

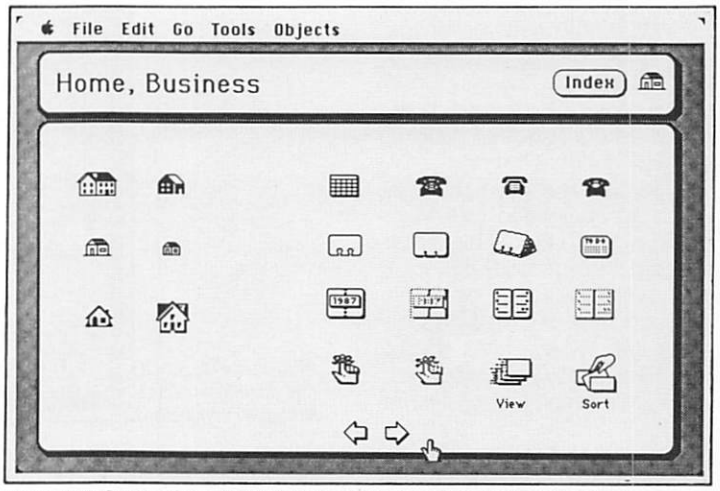


Figure VII: Some of the buttons you can paste on to your new cards

The first book about HyperCard has already been published in the US by Bantam. The Complete HyperCard Handbook by Danny Goldman contains a long interview with Bill Atkinson and is being brought into the UK by distributor Computers Unlimited. □

Summer holiday

Duncan Langford and Cliff McKnight go back to school

THERE must be something about Mac people – I can't remember in all the time I've had my Apple II there being a Residential School for the Apple – but I've just got home from my first Macintosh Summer School, and very enjoyable it was. We should have started them years ago!

I've spoken before of the Macintosh bulletin board, MacTel. A loosely knit association of ordinary users and enthusiasts, MacTel acts as a link between Mac people throughout the country – indeed, I've seen callers from outside Europe, too.

MacSeptember was a Macintosh Summer School, originated by the MacTel sysops, but carried to a very successful conclusion by David Thomas, a surgeon and Mac enthusiast.

The idea was to create forums where users with knowledge of the Mac could share with others: A wide user base means that no one person can really know it all, and of course limited knowledge in one area doesn't rule out considerable experience in another.

MacSeptember was a three day event, starting in the evening of Friday 18th September, and running until the evening of the 20th. Several hundred Macintosh enthusiasts assembled at Nottingham University, where a comprehensive series of workshops and seminars had been arranged, given by academics and other leading exponents of Mac knowledge, all of whom had donated their time.

The Mac is noted for desktop publishing, and on registration delegates were given an impressive magazine containing full details of all seminars, together with articles by those luminaries who conducted them.

It was an interesting example of what could be done with the Mac, and a nice souvenir. Also a good souvenir was the presentation coffee mug, screen printed from a MacPaint illustration!

An introductory session showed the huge range of delegates – from acknowledged Apple experts still with Cupertino dust on their shoes, to someone who had owned his Mac SE less than a week. David Thomas, the conference organiser, warmly welcomed his audience, followed by Apple's Mary Ainsworth, who set the scene by emphasising the importance of user involvement in the Mac's development.

Her audience were attentive, but perhaps as eager to see a new video demonstrating HyperCard, the latest software from Apple, which followed the introductory speeches.

In fact, practical demonstration was the keynote of the whole weekend; the next day and a half were taken up with a host of separate sessions – ranging from word processing techniques to 3D drafting, by way of an all-day session of making music with the Mac: No one could hope to see them all.

I concentrated on areas that I knew nothing about, and learned a little of Mac and the Midi interface. At one point I was allowed to hold a Fender guitar with Midi output, a totally unexpected treat.

For a few moments Duncan, rock guitarist, closed eyes and fantasised... a nice workshop, and although lots of very pricey equipment seemed necessary to produce the best music, some of the new software virtually amounts to word processors for sounds, placing creation of "real" music within the reach of most of us.

The dinner on Saturday evening was delicious – in fact, all the food was good and plentiful – but the acoustics made the speaker largely inaudible to half his audience. It was a solitary lapse in a very well managed occasion.

After dinner was over and the bar closed, a group of enthusiasts networked four Macs together in a bedroom, playing Maze Wars and the more difficult Net Trek far into the night. Maze Wars with three real opponents and three killer robots was terrific – the keyboards took a real hammering.

There were further individual workshops on Sunday morning, while Sunday afternoon involved a plenary session, when an engineer from Apple demonstrated why Apple usually prefers to send PR people to outside events; his style was a little aggressive, and even such committed Mac people as Cliff and I were disturbed at some of the comments made about users of the Apple II.

The demonstration of a Mac2 going through its paces was well worth watching, though, even if such a machine is high on most people's fantasy shopping list. Leicester Computer Centre (who generously lent me a Mac SE for the group photograph) also had a Mac2 on show, invariably surrounded by an impressed crowd. I was fortunate enough to see Mike Glover of Icon Technology demonstrating the new MacAuthor Version 2 on it – in colour, naturally.

There were a number of individual workshops after tea to round things off, where I learned more of hypertext and HyperCard. Actually, it would have been nice to have been able to attend again, with a fresh choice of workshops each time – the choice was just too great!

Overall, MacSeptember was a most enjoyable weekend. I hope that the next one is not too far away. □

Second impressions

WE weren't deliberately avoiding each other, but our choice of workshops meant that Duncan and I only had one session in common. Even so, between us we still couldn't cover the whole programme -- there really was plenty of choice.

I couldn't add to Duncan's review of the event, so I'll just mention a few of the things which spring to mind, like:

- Using Stella to work out how much cold water to add to a hot bath in order to slow its rate of cooling.
- The ritual disembowelling of a LaserWriter – some of the group preferred to watch from a distance.
- Working through a rudimentary drawing program written in Lightspeed Pascal and trying to add some improvements.

It wasn't all Macs – the bar did good trade and the pinball machine was by no means ignored, even if the left flipper did stick *(That's his story – Ed.)*. The Nottingham campus has enough greenery to create a pleasant site and enough different architectural styles to keep the eyes busy.

All in all, MacSeptember was a good idea well implemented and with very few bugs – what more could you ask for?

AppleUpdate

MultiScribe upgrade

AN upgrade path is now available for owners of the original MultiScribe who wish to now use version 2, or MultiScribe-GS.

The companion drawing program for MultiScribe-GS is TopDraw, a powerful and object-orientated colour drawing program for the IIgs.

Product: MultiScribe and TopDraw
Price: MultiScribe 2 £69.00, MultiScribe-GS £89.00, TopDraw £89.00, MultiScribe-GS and TopDraw bundle £129.00
Supplier: Bidmuthin Technologies, PO Box 264, Harrow, Middlesex HA3 9AY. Tel: 01-907 8516

Reformed characters

J. Graham Beaumont and Jonathon Lewis describe a font editor with a difference

ALTHOUGH alternative fonts are relatively easy to handle in Pascal, there has been little interest in either the availablility of other fonts or in editors to produce them. There is a character editor available in Pascal Animations and effectively another in Apple Pilot, but neither of these seem to be widely used.

The character font which is used for display on the graphics screen is contained in a system file called SYSTEM.CHARSET and helpfully, information about the format of this file is provided in the Apple Pascal Language Reference Manual (versions 1.1 and 1.2) on pages 98-100.

The font used for text screen display is not accessible through software alone. However, the graphics screen can operate as a text screen with an alternative font by using Turtlegraphics and graphics fonts may also be created and used just as they are in Basic.

It is possible to transfer the DOS Toolkit fonts to the Pascal format, but the main purpose of this article is to describe a font editor which can be used to create a new character font or graphics character set from scratch.

It can also be used to make changes to an already existing character set, including the standard SYSTEM.CHARSET, or to insert additional characters in the gaps which are present in some character sets.

The editor assumes that the standard SYSTEM.CHARSET is in position on the boot disc under that name. It is organised around a work area in which a new font can be created or an old one can be edited. Any font in Pascal has 128 different characters available.

The editor is menu driven and is easy to use. One option is to display the current state of the font being created. You will see eight columns of 16 pairs of characters, each of the pairs being separated by a vertical line.

The character on the left of the line is the character from the standard set in its position (0..127) in the set. The character on the right is the current character from the set being edited. If a font has not been loaded then this space will be blank.

The same display of characters is shown when editing is chosen. A cursor is moved with the arrow keys to the location to be amended and editing is begun. You will see two boxes in the upper part of the screen. The larger box on the left is divided into a 7x8 grid which represents on a large scale the matrix of points which is used to make up the character shown in the box on the right. The rows and columns of the grid are identified by letter and number.

Editing proceeds by entering a letter and pressing the spacebar to invert a row or number and space to invert a column. A

Listing I: Short program to display the current SYSTEM.CHARSET

```
program seechars;
uses turtlegraphics, applestuff;
var  i,j:integer;
begin
   initturtle;
   for i:= 0 to 15 do
   begin
      moveto(84,180-i*10);
      for j:= 0 to 7 do
      begin
         wchar(chr(i*8+j));
         move(7);
      end;
   end;
   moveto(56,0);
   wstring('...Press any key to exit');
   unitclear(1);
   repeat until keypress;
end.
```

Listing II: An example program to load your own character set

```
program loadchars;
uses turtlegraphics;
type
     datatype = packed array[0..1023] of char;
     contrk = packed record case b:boolean of
                      true : (int:integer);
                      false: (ptr:^datatype)
                    end;

 var  data:datatype;
      datafile:file of datatype;
      where:contrk;
      ch:char;
 begin
    reset(datafile,'ownbrew.font');
    data:=datafile^;
    close(datafile);
    where.int:=2418;  { use the value 2802 for Pascal 1.1,
1.2 }
    where.ptr^:=data; { 2418 is for Pascal 1.3
   }
    initturtle;
    pencolor(white);
    moveto(50,50);
    wstring('This is a test');
    repeat
       read(keyboard,ch);
    until ch=' ';
 end.
```

Listing III: Finding where the character set is loaded

```
program findcharset;
uses turtlegraphics;
type
     datatype= packed array[0..1023] of char;
     mystring=packed record case b:boolean of
                      true : (password:string[10]);
                      false: (myword :packed array[0..10]
of char)
                    end;

     contrk=packed record case b:boolean of
                    true : (int:integer);
                    false: (ptr:^mystring)
                  end;

 var data:datatype;
     datafile:file of datatype;
     count:contrk;
```

point may be inverted by giving its letter and number, in either order. This requires a little practice to create any character in the most efficient manner, but the idea is easily grasped and it can be good fun working out the minimum number of moves required.

Once completed, the character may be saved into the current font or editing may be abandoned.

File positions

Characters may be loaded from a font file which already exists on disc and usefully, part of such a file may be loaded. To do this you have to know the range of the positions in the file which your required characters occupy. You give the start and stop positions and the characters will be loaded.

A font creation session would begin by running the editor program and, if a font similar to the desired font already exists – including of course SYSTEM.CHARSET, loading this into the work area.

If other fonts are also available and desired characters are in these sets, then these can be loaded individually or in blocks into the work space. Characters in the working area are now modified or entirely new characters are created by selecting the editing mode.

When the font is complete it can be saved to disc – I would suggest that you give it the suffix .font. When the font is to be used the Filer should be used to transfer it to the boot disc under the name SYSTEM-.CHARSET remember to save the standard SYSTEM.CHARSET elsewhere or under another name.

When the system is next initialised, procedures WSTRING and WCHAR will produce the new characters. These may be displayed by a simple program such as in Listing I.

However, you may want to change between character sets in a program, if so you can use the method outlined here by Jonathon Lewis:

The system loads SYSTEM.CHARSET into memory at location 2802 under Pascal 1.1 and 1.2 and at 2418 under Pascal 1.3. So using the variant record trick your own character font can be copied on to the genuine character set. Listing II is an example program showing how this may be accomplished. It assumes that on the root disc is a file called 'OWNBREW.FONT'. This will be loaded and part of it displayed. There is no error checking as this is intended only as an example of what you can do.

You probably want to know how the address of SYSTEM.CHARSET in memory was found. The idea is simple and illustrated by the program of Listing III.

By passing restrictions

All that happens is that SYSTEM-.CHARSET is loaded automatically by the system and the program then loads it again into my variable. Then the program scans memory until it finds 10 consecutive bytes which match 10 consecutive bytes of the variable.

The easiest way of doing this is to make them strings of 10 character length, hence the exotic type definition of MYSTRING. This program also shows two ways of bypassing the normal TYPEing restrictions imposed by Pascal, namely the MOVELEFT procedure and the good old, variant record trick.

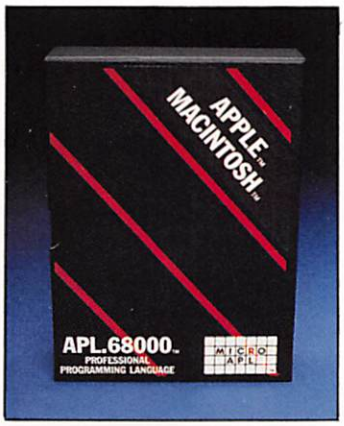
```
     count1:integer;
     grafword,testword:mystring;

 begin
    reset(datafile,'system.charset');
    data:=datafile^;
    close(datafile);
    { Copy a section of data into a 'string' for comparison
}
    { then force the string length to 10
}
    moveleft(data[0],grafword.myword,11);
    grafword.myword[0]:=chr(10);
    for count1 := 1024 to 4096 do
    begin
       { Copy memory to another 'string'          }
       { and set its length to 10                  }
       { Think about where the data arrives though }
```

```
       count.int:=count1;
       testword:=count.ptr^;
       testword.myword[0]:=chr(10);
       if testword.password = grafword.password then
writeln(count1);
          { the value of count1 is going to }
          { be 2 less than you might think. }
    end;
```

The main listing – Program Editcs – is one of hundreds of programs available FREE for downloading on MicroLink. Alternatively, send a blank 5.25in disc to: Max Parrott at 68 Chester Road, Hazel Grove, Stockport, Cheshire SK7 5NY and we will copy the listings on to it for you.

AppleUpdate



Half price programming

THE price of APL68000 on the Macintosh and Macintosh Plus has been reduced by more than £100 to £99.95.

According to Micro APL, the reduction is a result of increased demand for the programming language from Macintosh owners.

The APL Language has been around for more than 30 years on mainframe computers and has only recently been implemented on micros.

Some of its features include quick draw graphics, user-defined alert boxes, user-defined pull-down menus, full clip board support for text and graphics, built-in full screen editor, terminal emulation and the ability to drive laser and image writer printers.

Product: APL68000
Price: £99.95
Supplier: Micro APL, Unit 1F, Tideway Industrial Estate, 87 Kirtling Street, London SW8 5BP
Tel: 01-622 0395

Apple Writer made easy

Geoff Wood offers some tested tips for Apple Writer users

THERE are many different word processing programs for the Apple II but one of the most popular is Apple Writer. It started in 1979 as a text editing system for the Apple II Plus, displaying only 40 columns but printing out 80 columns. The Apple II displayed only upper case characters, so Apple Writer displayed the lower case characters in inverse capitals. It also used Dos3.2.

Apple Writer II on Dos3.3 arrived in 1981, capable of displaying 80 columns in upper and lower case. It included the Word Processing Language (WPL) to do mail merge and other automatic operations. But it still had one big problem: The cursor sat between the characters, so when the cursor was moved, the text was displaced. And the Apple II had only two cursor keys, so you had to press the Escape key in conjunction with another for cursor movement.

When the Apple IIe arrived in 1983, Apple Writer was updated to use Apple's 80-column card and the four arrow keys. The cursor now sat over the character so it could be moved without displacing the text. Fast typists found that it had a habit of not recording all the key depressions, but this fault could be overcome by switching off the data line at the top of the screen.

Soon after Prodos arrived in 1984, Apple Writer 2.0 was issued. This version can keep up with fast typists, there is a new command to display the page and line number and another to adjust the margins of the display. Apple Writer 2.0 is almost WYSIWYG, but it does not centre headings on the screen, nor does it display underlined and bold text.

Devotees of Apple Writer know that it compares favourably with other popular word processing programs (*Apple User*, February 1987), but it still has to live down the reputation of the earlier versions with their limitations.

This series sets out some tips for making better use of Apple Writer. Some of them can be found in the manuals, but they are overlooked even by those who have read their manual several times. Other tips are not in the manuals but have been devised by ingenious users. Some of the tips do not apply to the earlier versions of Apple Writer.

Loading large files

Even if you have more than 128k of ram, the maximum size of file with Apple Writer is 46,845 bytes. You can accidentally or deliberately create files larger than this by using the command Control+S with FILENAME+ which adds the file in memory to a file on disc. When you load in such a file, Apple Writer will fill the memory, then bleep. The same problem can arise when you load in a large textfile created by another program.

To overcome the problem, delete some text (if appropriate) from the end of this part file and save it under another name. Then clear the memory with Control+NY and load in the next part of the large file by using the command Control+L with FILENAME!MARKER!N where MARKER is the last few words of the first part which you have already saved. Save the second part with a different name, load in the third part, and so on.

Viewing a file

Unlike AppleWorks, Apple Writer allows only one file in memory at a time, but, within the limit of 46,845 bytes, you can merge two or more files into one file. However, you can also use Control+L with FILENAME» to view a file without loading it into ram. This facility can be useful not just for looking at a file but also when you want to load part of a file and can't remember the first and last words of the text you wish to load.

Splitting the screen

Some word processors that have more features than Apple Writer don't have one of its most useful commands, Control+Y, which splits the screen into two windows, top and bottom. Text in one window can be scrolled without affecting the text in the other window. This is very useful for editing or just for looking at another part of the document.

Deleting spaces between sentences

Most people use two spaces between sentences, but three or more may occur by accident. You can use Control+F with /. /. /A to replace triple spaces after a full stop, but you can't use /. /. /A for single spaces because it finds all the double spaces too. The only answer is to use /. / and search by eye.

Deleting unwanted spaces before full stops

Normally, there should be no space between the last word in a sentence and the full stop, but accidents can happen. Use Control+F to delete the unwanted spaces with / ././A, but don't use automatic replacement if your document includes figures like .25 instead of 0.25.

● *Continued next month* □

National Apple User Groups:

Apple 2000. The Apple User Group, P.O. Box 177, St. Albans, Hertfordshire AL2 2EG. Tel: 0727 73990.

MacTel. Bulletin Board for the European Macintosh Community, 15 Elm Tree Avenue, West Bridgford, Nottingham NG2 7JU. Tel: (voice) 0602 810237.

The Macintosh User Group UK. The UK's largest Macintosh User Group. The professional organisation with local groups. 55 Linkside Avenue, Oxford OX2 8JE. Tel: 0865 58027.

Local User Groups:

MacCam Macintosh User Group (Cambridge). Patrick Winterson. Tel: 022026 2436.

Suffolk & Cambs Gateway Computer Club. Robert Hall. Tel: 0638 717723 (Any time).

Berks & Hants Apple User Group. Mike Hollyfield. Tel: 0734 780301 (Evenings & Weekends).

Midapple. Tom Wright. Tel: 0527 71913.

Herts & Beds Apple and Macintosh Computer Group. Norah Arnold. Tel: 0582 573918.

Cambridge Apple User Group. Ian Archibald. Tel: 0223 311157.

Midland Mac. Ivan Knezovich. Tel: 0299 403418.

London Apple Computer Club. Chris Williams. Tel: 01-882 0333.

Bristol Apple Users & Dabblers. Michael Farmer. Tel: 0272 230000 ext. 2585 (Day).

Croydon Apple User Group. Graham Attwood. Tel: 01-850 5622 (Evenings & Weekends).

North-West Apple Users Group. Max Parrott. Tel: 061-236 3311 ext. 2055 (Day) 061-432 3487 (Evenings).

Apple Crackers Bulletin Board. Mike Jones. Tel: 0268 779244 (Evenings).

London Macintosh Users' Group. Maureen de Saxe. Tel: 01-458 4890.

North West Apple Computer Club. Jim Roscoe. Tel: 0925 38101 (Evenings).

Essex Apple User Group. Patrick Bermingham. Tel: 0245 261636.

Kent Apple Computer User Group. Richard Daniels. Tel: 0303 60515 (Day) 0303 58349 (Evenings).

Liverpool Apple User Group. Irene Flaxman. Tel: 051-928 9097.

Computers Unlimited Macintosh User Group. James Sanson. Tel: 01-349 2395 (Day).

Bentwaters Apple User Group. John Thomas. Tel: 0394 270240.

You're never alone with an Apple user group.

There are various Apple™ user groups dotted around the country.

And if you're not a member, you're really not getting the most out of your Apple.

For example, many of us publish regular magazines, full of news, views and reviews of new software. Special deals on blank disks and shareware abound. Hot tips on how to solve problems litter the pages. Some of us even have a phone 'Hotline' service.

We also hold meetings where you can try out various bits of hardware and software, listen to speakers on assorted Apple subjects, or just chat with other Apple fanatics!

We maintain links with Apple Dealers, software manufacturers and Apple Computer itself, but we're not beholden to any of them. And we attend all the Apple events and new product launches, to keep you up to date.

It's incredibly easy to join – just phone up your local group, and we'll give you all the details.

You've already got the only qualification you need... you've got an Apple computer!

Apple User Classifieds

Use this space to sell your unwanted Apple products to our readers. They're all looking for a bargain!

● Apple II Europlus 64k, Z80, two drives, MX80F/T printer, monitor ormbeta, full accounts software, 50 discs with Wordstar Supercalc Dbase etc. Excellent condition, accept £550 o.n.o. Tel: Day 0254 871629, evenings 0254 883825.

● Apple IIe+ monitor, twin disc drives, Cirtech Z80 64k card, Cirtech champion printer card, daisy wheel printer, joystick software: Textstore accounts format 80 enhanced word processing Apple Pascal £950 o.n.o. Tel: 0252 628940 after 7pm and weekends.

● Apple IIe, two drives, 256k Asynchronous board, software, offers Tel: 01-584 1994.

● Appleworks 1.2, £35; Apple writer II, £30, both with manuals. Manuals alone £10 each. Derek, 16 Innisfayle Park, Belfast, Northern Ireland.

● Burnley Apple User Group meets monthly, details Tel: 0706 78291.

● Apple II Europlus for sale. CPU 48k. Only £125 o.n.o. Tel: Mark 0633 59476.

● 512k Apple Macintosh, 400k external disk drive, Imagewriter 1 printer, Macwrite, Macpaint, Multiplan £1300. Tel: New Romney (Kent) 66688.

Ads will be accepted under the following conditions:

- This service is EXCLUSIVELY for the use of private readers. No trade ads will be allowed.
- To avoid encouraging software piracy, all ads will be carefully vetted before they are accepted.
- Ads can only be accepted on this form (or a photocopy of it).
- There is no maximum to the number of words you include. If there is insufficient room on the form, continue on a separate sheet of paper.
- The cost is 20p per word, with a minimum of 10 words.
- *We GUARANTEE your ad will appear in the December issue (on sale November 25) providing it is received by October 26.*

AN ADDED BONUS

Your advert will be automatically displayed on MicroLink, the electronic mail service operated in conjunction with Telecom Gold. This means it will be seen by many thousands of computer enthusiasts who can send an instant response.

PLEASE PRINT THIS AD IN THE NEXT ISSUE

Cheque enclosed for £_____ (minimum £2 for 20 words), payable to Database Publications Ltd.

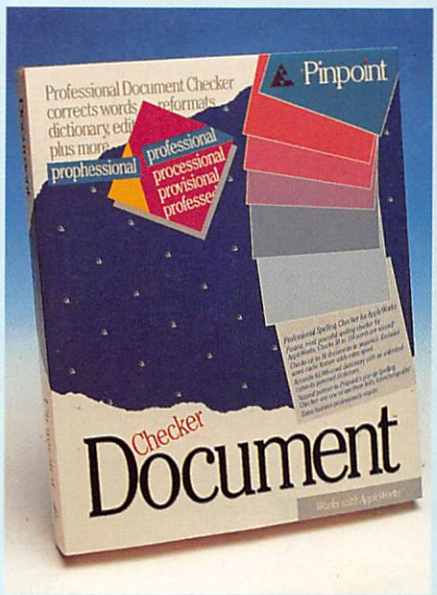
Name_____

Address_____

_____

POST TO: Apple Classifieds, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY. AU11/87(1)

Documentary evidense



Geoff Wood tests out a spelling checker with a difference

DOCUMENT Checker is Prodos based and runs on an enhanced IIe, a IIc or a IIgs. It is a standalone program and checks AppleWorks word processor files and text files created by other word processing programs. It is not copy protected – indeed, the 68 page manual insists on a copy being taken as back-up.

One side of the distributed disc holds the program, the other the main dictionary of 60,000 words and an auxiliary dictionary for your own words. Both may be copied to a 3.5in floppy or a hard disc or ram card, in which case it runs faster.

After starting up the main menu offers four choices; View/Check Documents, Other Activities, Set Configuration Defaults, and Quit Document Checker. Options are selected either by using cursor keys to highlight and then pressing Return, or by the V, O, S and Q keys. The first three choices display sub-menus which display options to be selected in a similar way.

The first step is to set up configuration defaults which are retained on disc when quitting the program. The location of dictionary files may be set by slot and drive number or by Prodos pathname.

Dictionaries

The main and auxiliary dictionaries must be in the same directory. The name of the auxiliary dictionary is normally AUX.DICT.S; you can create others with different names for specialised purposes, but only one may be active at one time. Checking is faster with a small auxiliary dictionary because its words are stored in simple Ascii text form rather than the compressed form of the main dictionary.

The Marking Character is displayed at the end of any line which may need reformatting after changing words. This character is normally the tilde (~) but may be changed. This feature is disabled by leaving the character blank.

Document Checker ignores lines which begin with a full stop, so lines created by AppleWriter containing such formatting codes or lines created for electronic mail in Microlink will be ignored unless the Omit Line Character option is set to another; they may be chosen to suit, maybe to ignore lines containing initials, acronyms or hexadecimal numbers.

One feature of Document Checker not found in many spelling checkers, is its ability (which may be toggled on and off) to detect duplicated words such as "the the" – the sort of thing that happens at the ends of lines and is very hard to spot.

The final main menu option is a toggle for interactive document checking. Normally when checking, each suspect word is displayed in context and you decide what to do. In non-interactive mode suspect words are compiled into a disc file called DOCUMENT.LOG along with other information such as the numbers of words found.

The advantages of non-interactive mode are that you do not have to watch the screen – you can leave the room, make a telephone call or drink your coffee – and more than one text file may be checked at a time. Later, you can inspect DOCUMENT.LOG and decide what to do. Good spellers will find that this reveals only proper nouns, acronyms and a few unusual words, all spelt correctly.

One Pinpoint claim is that a teacher could compile a master list of misspelt words without changing the original files. Each student could then be given a list of their own errors. However, I found that DOCUMENT.LOG does not list duplicated words separately, a point not made in the manual.

The location of document files is set by slot and drive number or by Prodos pathname and the setting is saved when you quit the program. For fast checking, document files may be moved to ram cards but you have to remember to copy the corrected version back to permanent media if you wish to keep it.

The last option of the main menu quits the program, querying your choice – if you answer Y the default settings are saved. Of course, if you have copied the program files to a ram card you must remember to copy them back to disc if you wish to save the settings.

Choosing the View/Check Documents option brings up a sub-menu offering three choices, Check a Document, View a Document and Examine the Cache Contents.

Choosing the first of these displays documents in the current directory. You select one using cursor keys to highlight and Return to confirm.

Disc management

At this stage, with the program disc in drive 1 and a document disc in drive 2, it scans the program disc for one of two small files called AWP.MODULE and ASCII.MODULE. Having found the right file it displays the message "Unable to open the dictionaries" but it does not say why: You must take out the program disc and insert the dictionary disc.

If you have checked an AppleWriter file and want to check an AppleWorks file, it asks you to put the program disc back in drive 1, then repeats the message about dictionaries.

I found this feature irritating but overcame it by copying the two small files from the program disc to the dictionary disc and renaming it from PP.DICT to PP.DOCO-CHECKER. After starting up, I put the revised dictionary disc in drive 1 and it worked fine. With the program and dictionaries all on one 3.5in disc or on a hard disc or ram card you do not have this problem.

As the document search continues a message is displayed showing whether the program is in interactive or non-interactive mode. It also shows the number of files to check and the percentage checked so far.

If the DOCUMENT CHECKER is in interactive mode it scans the document file until it finds a suspect word. In the top of the ▷

◁ screen it displays 9 lines of document text with the highlighted, suspect word in the middle.

After searching the dictionaries it displays up to 10 suggested spellings in a panel in the lower left screen. The lower right has a panel offering options to Learn, Edit or Ignore the word, or to Continue or Quit Document Check.

If the word is spelt correctly but not in the main or auxiliary dictionary you can use Learn Word to enter it into the auxiliary. If then found again it is not treated as a suspect word.

Similarly, it will not be if you chose the Ignore Word option, and it will not enter the dictionary. On the other hand, the option Continue Document Check will not add the word to the dictionary and it will be flagged if found again.

If the word is incorrectly spelt, you can use the cursor keys and return to select the right one from the list of suggested spellings. If the line marker is switched on a tilde will be placed in the text at the line end.

If none of the suggested spellings is suitable, you could use the Edit Word option. This causes the suspect word to be displayed a panel, where you can change it before making the substitution.

One useful feature of Document Checker is that words like "notepad" and "spreadsheet" show the alternatives "note pad" and "spread sheet" among the suggested spellings.

Suggested spellings are case sensitive; words entirely in upper or lower case are replaced by words entirely in upper or lower case. Words which start with upper case are replaced by words starting with upper case.

Sometimes with suspect words, the program will reverse the leading two letters to find a suggestion. For example, "htere" will prompt the suggestion "there". Repeated words are offered for deletion.

As the interactive search progresses a new file called SPELL.TEMP is created in the document directory. This is the updated version of the original and enough space has to exist on disc to accomodate it. If the disc is full the search will not start and if nearly full may well stop part way through.

When checking is finished and some words have been replaced you can save the corrected file. SPELL.TEMP is then renamed with your file name and the original is retained as back-up with the suffix .B. The top of the screen then prompts you to reformat, or tells you that corrections have not been saved or that there are no corrections to the file.

It also shows the number of lines and words checked, the number of unique words (excluding repeats) and correct words, the number learnt or ignored and the number of corrections.

The View a Document option allows you to choose one from a directory display and then it appears in the nine lines at the top of the screen, scrolling upwards. Scrolling is stopped with the spacebar or Control+S and scrolling speed is controlled by the Open and Closed Apple keys.

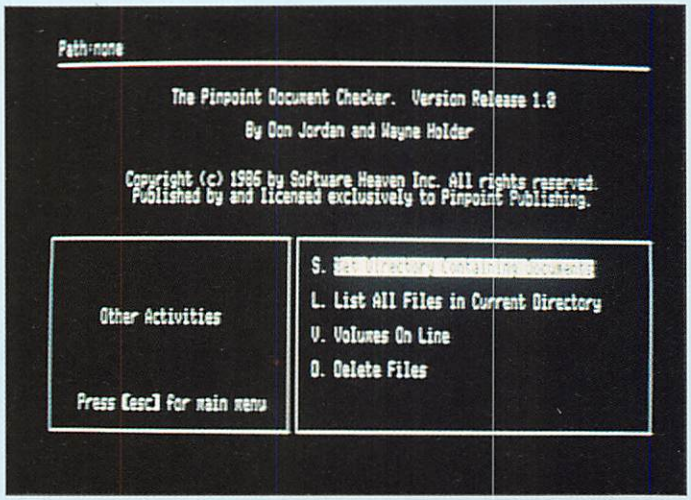


Figure 1: The main menu with key selected choice highlighted

As the program checks a document it compiles an alphabetical list of all the words in memory. This is the cache which may be viewed in the top nine lines.

Against each word is its position in the list, the original spelling, the corrected or uncorrected spelling if changed, the status of the word (that is, correct, misspelt, or ignored) and the number of times the word appears in the file.

You move through the list using cursor keys or a "hot" key to move to the initial letter of a word. Unfortunately there is no way to save the cache to disc or to print it on paper.

Initially the cache is empty but after checking one document if you start to check another the program asks "Initialise the contents of the cache? No Yes". What this really means is "Do you want to empty the cache?"

American flavor

If you accept the default (No) the search proceeds but operates much faster than with an empty cache. Accepting Yes gives a slower search, but then the cache does only contain the words of the current document.

Document checker uses the same American dictionary as the Pinpoint Spelling Checker so it recognises words like color and labor but not colour and labour. It does not accept recognise and other words ending in "ise" which Americans spell with "ize". Nor does it accept defence, offence and pretence which they spell with an "s" in place of "c".

It thinks that words like appal and skilful should have "ll": It doesn't like the "e" of likeable, liveable, rateable and saleable and it suspects words like centre and theatre which Americans spell with "er" instead of "re".

The answer is to put the English spellings into the auxiliary dictionary but then checking does take a little longer. Since the auxiliary file is an Ascii text file you can inspect it with a word processor and delete words if you wish.

Of course, the program only checks spelling. If you type "their" in place of "there" it does not recognise the mistake.

I used Document checker on the draft version of this article. In non-interactive mode it took just over six minutes in a IIe with two 5.25in drives. It took 160 seconds with the program and dictionaries in a ram card and 75 seconds with the text file also in the ram card. In a IIgs the corresponding times were three minutes with a 3.5in disc, 110 seconds and 35 seconds.

I also checked the article with Sensible Speller. On the IIe it took just under three minutes to collect and check the words against two dictionaries. In a ram card it took 140 seconds or 100 seconds with the text file also in ram. On the IIgs the times were under two minutes, 45 seconds and 38 seconds.

The process of correcting and editing the suspect words is separate and takes about the same length of time with both programs.

Document Checker is slower than Sensible Speller from discs but faster in ram, it also has advantages in that it checks repeated words, suggests transposing initial letters sometimes, suggests splitting some misspelt words and can check several documents consecutively.

Sensible Speller is much more expensive than Document Checker but its two dictionaries have over 85,000 words. It can also print out the frequencies of words in a file.

Moreover, it can solve crossword puzzle clues by making suggestions for words with wildcards in them. For example, ?e?e?e will list delete, recede, renege, revere, secede, serene and severe. Document Checker does not have this facility.

If you are a crossword addict, Sensible Speller is a must – but if you just want a fast, reliable spelling checker, Pinpoint's Document Checker is a good buy.

Product: The Pinpoint Document Checker
Price: £69
Supplier: Bidmuthin Technologies, P.O. Box 264, Harrow, Middlesex HA3 9AY.
Tel: 01-907 8516

□

MicroLink
in association with
TELECOM GOLD

NEWSLETTER

USA link back in action

THE giant American database Mnematics is once again available to MicroLink subscribers after a complete reorganisation.

Mnematics' switch to a more efficient system carrier caused the temporary severance of UK links with the dynamic electronic information source.

But now MicroLink subscribers can again chat to enthusiasts in the USA and tap the vast array of computer-related and special interest group sections.

All the old Mnematics features are back – plus some new departments – and there are plans for even closer ties with MicroLink.

These include a reverse gateway to allow the Americans to make direct calls to MicroLink and see what's on offer over here.

A new line for the Church

COMPUTER communications systems like MicroLink have become a major focus of interest for Britain's churches.

A joint study of information technology is currently being undertaken by Church House, the Anglican Consultative Council and the British Council of Churches. It will eventually lead to more efficient electronic communication between churches all over the world.

Meanwhile similar assessments on a smaller scale are being conducted in just about every diocese in the UK. Typical of these is the one being done by the Rev Richard Thomas, communications officer for the Diocese of Winchester.

"I'm using MicroLink as part of my brief to explore the whole area of communications", he said.

"I believe electronic mail is going to become very important and I'm sure it has a lot to offer the Church – both nationally and internationally – as a communications medium".

Farming baronet on line

DOWN on the farm or in the factory, baronet and MicroLink subscriber Sir Charles Legard is equally at home thanks to computer communications.

Information technology makes sure he's always up to date with what's happening on his North Yorkshire estates in the Vale of Pickering as well as the family businesses in Leeds and Bradford.

Sir Charles farms 1,700 acres of arable land around Scampston Hall, Malton, in addition to running companies involved in engineering and wholesaling electrical components.

Legards have owned land in Yorkshire since the 12th Century, but the micro and modem are now as much a part of the scene at Scampston Hall as the family portraits.

"Whether I'm at home or in one of my offices, computer communications keep me constantly in touch with what's going on elsewhere", said Sir Charles.

Communicating to cut unemployment

TWO organisations at opposite ends of the spectrum are using MicroLink communications as they attempt to reduce unemployment.

Camden Jobtrain in North London provides local youngsters with opportunities to learn the specific skills which surveys have revealed are most wanted by employers in the area.

There are 120 places on courses in motor mechanics, carpentry and joinery, office skills, catering, and care for the elderly and young children – all leading to City and Guilds or other qualifications.

At the other end of the scale, the Mid-Career Development Centre in Croydon helps business and professional people who have been made redundant or want a more fulfilling job.

The Centre's experienced career counsellors provide individual help to restore confidence and practical assistance in getting a new job.

"Many people find that being made redundant turned out to be a lucky break because it galvanised them into action they might otherwise never have taken", says principal Kieran Duignan.

Your chance to join MicroLink – turn to Page 11

BR BOOKING EASIER

MICROLINK's convenient British Rail telebooking service has been given a complete update.

It allows subscribers at any hour of the day or night to order train tickets for journeys between London and more than 20 major UK centres from Aberdeen to York.

Subscribers can book their journeys via MicroLink after studying the electronic timetables in the comfort of their own home or office, and charge them to their Access, Barclaycard, American Express or Travel Key account. Tickets are sent by return post.

Dumping from Mousepaint

Den James offers a solution to a long standing printing problem

NOT being able to dump artwork from Mousepaint on to my Epson printer has for long been a disappointment so, given that action is more productive than complaint, I examined and modified its printer driver.

In Mousepaint v1.1 this driver resides at $8DFD, and is $10F bytes long. In older versions of Mousepaint it resides at $8C31 and has the same length. In both versions it can be accessed by BLOADing /MOUSEPAINT/MP/PRINTDRIVER.

On an ImageWriter this produces a double-sized printout with the attendant chunkiness which derives from enlarging hires screen images, but I decided to base the revision on a normal-sized one.

Unlike Blazing Paddles you can't get rid of the palette with Mousepaint so it has to copy your masterpiece to another area of memory for printing purposes. This area starts at $A100 in version 1.1 and at $9CD1 in the earlier version.

But beware, this buffer is not mapped in the same way as is the screen: Here, it is copied line by line straight through from the top to the bottom of the screen consecutively. You can't just move en bloc to the hi-res screen as you'll end up with a scrambled picture.

The machine code listing included here shows how the data bytes are taken from this store and turned into printable bytes that the Epson can use. On entry to the routine the printer is immediately set for output, the printer defaults are reset and the line spacing is established. The program will print the picture in 24 passes of the printer head and each pass is eight pixels deep, so the addresses of the first bytes in each of the first eight pixel rows of the picture need to be taken and stored in zero page ($00 to $0F).

At this point the bit image commands are issued to the printer – normal density, 280 bytes per line. Each of the first bytes is then taken and inverted (and stored in locations $81 to $88) so that the printed picture appears as you would expect to see it, that is, black lines on a light background will appear as black lines on your paper.

From here, the same corresponding bit is taken from each of the eight bytes for printing, the ROR and ROL instructions respectively push one bit from the stored byte into the carry flag and then out again into the A-register, which will eventually hold the whole, vertical printable byte.

As soon as each printable byte is evaluated it is printed, rather than the program wasting space with a distinct line buffer.

Only seven bits from each byte are treated because the MSB is a colour control bit which is not displayed on the screen. From there, simple looping ensures every printable byte is "manufactured" and when printing is complete the printer defaults are reset, output redirected to the screen and control is handed back to Mousepaint.

Incidentally, the ROR/ROL routine is visited 6,720 times, the number of printed bytes in the finished picture.

Once the listing has been typed in or assembled in a Prodos environment it should be saved to a backup copy of your Mousepaint disc by typing

BSAVE /MOUSEPAINT/MP/PRINTDRIVER, A$8DFD, L$10F for version 1.1

and

BSAVE /MOUSEPAINT/MP/PRINTDRIVER, A$8C31, L$10F for earlier versions.

Mousepaint uses $0300 to store the slot number in the form Cs and $0301 holds a value in the form s0 (where s=slot number) which is used by Y in the PRINTGR routine to give slot independence.

The printer control codes are gathered at the end of the listing. Enough room exists for additional or different codes as required: For example you might want to alter the left margin from its (reset printer defaults), at SETUP is ESC A 08 (8/72 line spacing), and at GRAPHIC are 0D (Return), 0A (linefeed) and ESC K 18 01 (to give 280 bit image bytes per line). The delimiter for each set of controls is 00.

The printing takes place in routine PRINTGR which uses printer card, specific memory locations BUSY and OUTPUT. This is because most interface cards will not

Apple*tip*

IIgs disc handling

SOMETHING of interest if not of immediate use for IIgs owners. Take any discs out of your boot drive and either switch on or press Open Apple+Control+Reset. You will see the bouncing Apple.

Now press Open Apple+Control+Option+N. How about that!

While on the subject of discs, it may be worth knowing that 3.5in discs may be copied on Macintoshes fitted with 800k drives if you happen to have the appropriate Mac copy software and a convenient Mac.

pass all 256 possible byte values if printer output is performed using COUT (SFDED) which is the normal way.

If your card has a command to allow all character values to be passed, incorporate this in the RESET string and pass your values out via COUT; this is how the original PRINTDRIVER handles the Apple Super Serial Card.

The interface specific memory locations used in the listing work for a Grappler and will work for many other cards. If you find the routine does not work with your interface card you will have to consult its manual for four things.

These are the base memory location which returns the status of the printer (this will be BUSY), the bit of that status which reflects the busy status (bit 0 in the listing, hence the AND #1), whether it is set or reset to indicate busy (the Grappler is busy if the bit is reset, hence the BEQ READY), and the memory location to which to write the output byte (this will be OUTPUT).

It is quite common to use SC080 as the base for memory output, but the base address for the status byte varies – it commonly is also SC080. Some cards require a strobe to be pulsed after the data is latched. For example the code for the Blackboard will be:

```
PRINTGR STY $300
        LDY $301
READY   BIT BUSY,Y
        BVC READY
        STA OUTPUT,Y
        STA STROBE,Y
ALLREAD RTS
```

where BUSY is SC080, OUTPUT is SC080 and STROBE is SC081.

The Apple Parallel card and the Epson cards use a different area of rom to carry the status byte. Here, you should set BUSY equal to SC0C1 and OUTPUT equal to SC080 and use the code segment:

```
PRINTGR STY $300
        PHA
        LDY $301
READY   LDA BUSY
        BMI READY
        PLA
        STA OUTPUT,Y
        LDY $300
ALLREAD RTS
```

You will also need to insert a line before line 41 of the listing which sets up this routine for the correct slot, this will have the form:

```
STA READY+2
```

This has been incorporated into the hexadecimal dump which is for the older Mousepaint and an Epson Interface card. Happy printing!

Listing I: For the older version of Mousepaint using the Grappler Interface card. Note lines 8 & 32 if you have v.1.1

```
0000:                1 ;*********************************
0000:                2 ;*                               *
0000:                3 ;*  MOUSEPAINT 1.x PRINTDRIVER   *
0000:                4 ;*       FOR EPSON PRINTERS      *
0000:                5 ;*        DEN JAMES - 1987       *
0000:                6 ;*                               *
0000:                7 ;*********************************
----- NEXT OBJECT FILE NAME IS /MOUSEPAINT/MP/PRINTDRIVER
8C31:        8C31    8           ORG   $8C31          ;Will be $8DFD
                                                      for version 1.1
8C31:        0000    9 SCRCH1    EQU   $00
8C31:        0002   10 SCRCH2    EQU   $02
8C31:        0004   11 SCRCH3    EQU   $04
8C31:        0006   12 SCRCH4    EQU   $06
8C31:        0008   13 SCRCH5    EQU   $08
8C31:        000A   14 SCRCH6    EQU   $0A
8C31:        000C   15 SCRCH7    EQU   $0C
8C31:        000E   16 SCRCH8    EQU   $0E
8C31:        0036   17 CSWL      EQU   $36
8C31:        0037   18 CSWH      EQU   $37
8C31:        0080   19 LNCOUNT   EQU   $80
8C31:        0081   20 BITS1     EQU   $81
8C31:        0082   21 BITS2     EQU   $82
8C31:        0083   22 BITS3     EQU   $83
8C31:        0084   23 BITS4     EQU   $84
8C31:        0085   24 BITS5     EQU   $85
8C31:        0086   25 BITS6     EQU   $86
8C31:        0087   26 BITS7     EQU   $87
8C31:        0088   27 BITS8     EQU   $88
8C31:        0089   28 DATPTRL   EQU   $89
8C31:        008A   29 DATPTRH   EQU   $8A
8C31:        C080   30 OUTPUT    EQU   $C080
8C31:        C081   31 BUSY      EQU   $C081
8C31:        9CA9   32 BUFFER    EQU   $9CA9          ; This is $A0D8
                                                      for v.1.1
8C31:A5 36           33          LDA   CSWL
8C33:48              34          PHA
8C34:A5 37           35          LDA   CSWH
8C36:48              36          PHA
8C37:A9 00           37          LDA   #$00           ;DIRECT OUTPUT TO
                                                      PRINTER
8C39:85 36           38          STA   CSWL
8C3B:A0 00 03        39          LDA   $300
8C3E:85 37           40          STA   CSWH
8C40:A9 00           41          LDA   #>RESET        ;RESET PRINTER
8C42:A2 8D           42          LDX   #<RESET        ;CARD DEFAULTS
8C44:20 F0 8C        43          JSR   PRNTCMD
8C47:A9 03           44          LDA   #>SETUP        ;PREPARE PRINTER
8C49:A2 8D           45          LDX   #<SETUP        ;FOR USE
8C4B:20 F0 8C        46          JSR   PRNTCMD
8C4E:A9 18           47          LDA   #$18           ;PREPARE FOR 24
                                                      LINES
8C50:85 80           48          STA   LNCOUNT        ;EACH 8 PIXELS
                                                      DEEP
8C52:A9 A9           49          LDA   #>buffer       ;PIC BUFFER AT
8C54:A0 9C           50          LDY   #<buffer       ;=$A100 for v.1.1
8C56:A2 0E           51 DOLINE   LDX   #$0E           ;LOOP TO LOAD
                                                      START ADDR
8C58:18              52 ADDLOOP  CLC                   ;OF 1st 8 PIXEL
LINES INTO
8C59:69 28           53          ADC   #$28           ;ZERO-PAGE
                                                      SCRATCHPADS
8C5B:90 01   8C5E    54          BCC   SAVEADD
8C5D:C8              55          INY
8C5E:95 00           56 SAVEADD  STA   SCRCH1,X
8C60:94 01           57          STY   SCRCH1+1,X
8C62:CA              58          DEX
8C63:CA              59          DEX
8C64:10 F2   8C58    60          BPL   ADDLOOP
8C66:A9 07           61          LDA   #>GRAPHIC      ;ISSUE CR+LF+BIT
8C68:A2 8D           62          LDX   #<GRAPHIC      ;IMAGE COMMANDS
                                                      TO
8C6A:20 F0 8C        63          JSR   PRNTCMD        ;PRINTER
8C6D:A0 00           64          LDY   #$00
8C6F:B1 00           65 INVERT   LDA   (SCRCH1),Y     ;INVERT EACH OF
                                                      THE 8
8C71:49 FF           66          EOR   #$FF           ;HORIZONTAL BYTES
                                                      SO THAT
8C73:85 81           67          STA   BITS1          ;FINISHED PIC IS
                                                      HOW
8C75:B1 02           68          LDA   (SCRCH2),Y     ;YOU EXPECT.
                                                      STORE FOR
8C77:49 FF           69          EOR   #$FF           ;CONVERSION TO
                                                      VERTICAL
8C79:85 82           70          STA   BITS2          ;(PRINTABLE)
                                                      BYTES
8C7B:B1 04           71          LDA   (SCRCH3),Y
8C7D:49 FF           72          EOR   #$FF
8C7F:85 83           73          STA   BITS3
8C81:B1 06           74          LDA   (SCRCH4),Y
8C83:49 FF           75          EOR   #$FF
8C85:85 84           76          STA   BITS4
8C87:B1 08           77          LDA   (SCRCH5),Y
8C89:49 FF           78          EOR   #$FF
8C8B:85 85           79          STA   BITS5
8C8D:B1 0A           80          LDA   (SCRCH6),Y
8C8F:49 FF           81          EOR   #$FF
8C91:85 86           82          STA   BITS6
8C93:B1 0C           83          LDA   (SCRCH7),Y
8C95:49 FF           84          EOR   #$FF
8C97:85 87           85          STA   BITS7
8C99:B1 0E           86          LDA   (SCRCH8),Y
8C9B:49 FF           87          EOR   #$FF
8C9D:85 88           88          STA   BITS8
8C9F:A2 07           89          LDX   #$07
8CA1:66 88           90 MAKEBYT  ROR   BITS8          ;MAKE A VERTICAL
8CA3:2A              91          ROL                   ;PRINTABLE BYTE
                                                      FROM
8CA4:66 87           92          ROR   BITS7          ;THE HORIZONTAL
8CA6:2A              93          ROL                   ;PICTURE BYTES.
8CA7:66 86           94          ROR   BITS6          ;EACH PASS
                                                      THROUGH
8CA9:2A              95          ROL                   ;THIS ROUTINE
```

```
                                        MAKES
8CAA:66 85          96          ROR  BITS5      ;SUCCESSIVE
                                        PRINTABLE
8CAC:2A             97          ROL              ;BYTES UNTIL ALL
                                        280
8CAD:66 84          98          ROR  BITS4      ;PIXELS IN AN
                                        8-ROWS-
8CAF:2A             99          ROL              ;DEEP LINE HAVE
8CB0:66 83          100         ROR  BITS3      ;BEEN TREATED
8CB2:2A             101         ROL
8CB3:66 82          102         ROR  BITS2
8CB5:2A             103         ROL
8CB6:66 81          104         ROR  BITS1
8CB8:2A             105         ROL
8CB9:20 DA 8C       106         JSR  PRINTGR    ;PRINT ALL 7
                                        VISIBLE
8CBC:CA             107         DEX              ;PIXELS IN EACH
8CBD:D0 E2    8CA1  108         BNE  MAKEBYT    ;PICTURE BYTE...
8CBF:C8             109         INY              ;...AND ALL 40
BYTES
8CC0:C0 28          110         CPY  #$28       ;IN EACH LINE
8CC2:D0 AB    8C6F  111         BNE  INVERT
8CC4:A5 00          112         LDA  SCRCH1     ;NOW DO THE NEXT
8CC6:A4 01          113         LDY  SCRCH1+1   ;OF THE 24 LINES
8CC8:C6 80          114         DEC  LNCOUNT
8CCA:D0 8A    8C56  115         BNE  DOLINE
8CCC:A9 00          116         LDA  #>RESET    ;RESET PRINTER
8CCE:A2 8D          117         LDX  #<RESET    ;DEFAULTS
8CD0:20 F0 8C       118         JSR  PRNTCMD
8CD3:68             119         PLA              ;RE-ESTABLISH
                                        OUTPUT
8CD4:85 37          120         STA  CSWH       ;TO SCREEN AND
8CD6:68             121         PLA              ;RETURN TO
8CD7:85 36          122         STA  CSWL       ;MOUSEPAINT
8CD9:60             123         RTS
8CDA:8C 00 03       124 PRINTGR STY  $300       ;PRINT THE
                                        VERTICAL
8CDD:48             125         PHA
8CDE:AC 01 03       126         LDY  $301
8CE1:B9 81 C0       127 READY   LDA  BUSY,Y     ;GRAPHIC BYTE
8CE4:29 01          128         AND  #1
8CE6:F0 F9    8CE1  129         BEQ  READY
8CE8:68             130         PLA
8CE9:99 80 C0       131         STA  OUTPUT,Y
8CEC:AC 00 03       132         LDY  $300
8CEF:60             133 ALLREAD RTS
8CF0:85 89          134 PRNTCMD STA  DATPTRL    ;FETCH COMMAND
DATA
8CF2:86 8A          135         STX  DATPTRH
8CF4:A0 00          136         LDY  #$00
8CF6:B1 89          137 NXTCHAR LDA  (DATPTRL),Y
8CF8:F0 F5    8CEF  138         BEQ  ALLREAD
8CFA:20 DA 8C       139         JSR  PRINTGR    ;TO INSTRUCT
8CFD:C8             140         INY              ;THE PRINTER
8CFE:D0 F6    8CF6  141         BNE  NXTCHAR
8D00:1B 40 00       142 RESET   DFB  $1B,$40,$00
8D03:1B 41 08 00    143 SETUP   DFB  $1B,$41,$08,$00
8D07:0D 0A 1B 4B    144 GRAPHIC DFB  $0D,$0A,$1B,$4B,$18,$01,$00 00
```

Listing II: Hexadecimal dump of PRINTDRIVER for the older Mousepaint with an Epson Interface Card.

```
8C31:A5 36 48 A5 37 48 A9 00 85 36 AD 00 03 85 37
8C40:8D E6 8C A9 01 A2 8D 20 F1 8C A9 04 A2 8D 20 F1
8C50:8C A9 18 85 80 A9 A9 A0 9C A2 0E 18 69 28 90 01
8C60:C8 95 00 94 01 CA CA 10 F2 A9 08 A2 8D 20 F1 8C
8C70:A0 00 B1 00 49 FF 85 81 B1 02 49 FF 85 82 B1 04
8C80:49 FF 85 83 B1 06 49 FF 85 84 B1 08 49 FF 85 85
8C90:B1 0A 49 FF 85 86 B1 0C 49 FF 85 87 B1 0E 49 FF
8CA0:85 88 A2 07 66 88 2A 66 87 2A 66 86 2A 66 85 2A
8CB0:66 84 2A 66 83 2A 66 82 2A 66 81 2A 20 DD 8C CA
8CC0:D0 E2 C8 C0 28 D0 AB A5 00 A4 01 C6 80 D0 8A A9
8CD0:01 A2 8D 20 F1 8C 68 85 37 68 85 36 60 8C 00 03
8CE0:48 AC 01 03 B9 C1 C0 30 FB 68 99 80 C0 AC 00 03
8CF0:60 85 89 86 8A A0 00 B1 89 F0 F5 20 DD 8C C8 D0
8D00:F6 1B 40 00 1B 41 08 00 0D 0A 1B 4B 18 01 00 00
```

Great expectations

Chris Colbourn finds whether Printworks lives up to its claims

WHEN I read the following paragraph in the introduction of the manual for this package I really expected great things:

"Printworks for the Mac is software that gives you much more printing capability than the standard Macintosh printing software. With Printworks for the Mac, your printing will be faster and better!"

As a heavy user of ImageWriters for document production (we still can't afford a LaserWriter in my neck of the woods), I have tried many previous methods to achieve high quality results via this medium.

I had settled on particular fonts (different ones for different applications and end results required) printed in best quality using the latest Apple ImageWriter drivers as my current standard and these provide near-letter-quality (NLQ) output in a wider variety of styles and with integrated graphics than most dot-matrix printers can achieve. It is against this that such claims as those of Printworks will be evaluated.

The package consists of a single 400k start-up disc containing three new ImageWriter drivers – one for each of the two versions of the ImageWriter, and a third for use with the ImageWriter II in conjunction with MicroSoft Chart, MicroSoft Excel or Lotus Jazz which do not use the standard Macintosh fill patterns.

Desk accessories

There are also three desk accessories (DAs) for controlling aspects of printing (that is, matching document fonts to printer fonts in certain non-Apple printers, colour to fill pattern mapping for colour printing, and spooler size adjustment), four new NLQ fonts (Pica, Elite, plus a proportional and compressed variant of these), and the standard Apple Installer to set up your own discs as required.

The review copy was the latest version and was stated to be compatible with all Macs that could run system software from System 3.2/Finder 5.3 (provided on the disk) up to the latest releases (that is System 4.1/Finder 5.5), which was indeed the case, although as the manual points out Printworks will not operate with the Apple Server or with an AppleTalk printer.

The installation instructions are comprehensive, but careful attention needs to be paid to them to select items appropriate to your machine and printer. The package as supplied caters only for the ImageWriters I and II, although the manual states that drivers for a range of other dot-matrix printers can be supplied upon request.

Like a majority of Mac users I only have access to systems with ImageWriters and therefore I have not tested this package with other printer hardware. It does seem to offer a potentially useful way for those people who have Epson or Star printers and so on to use them in conjunction with their Macs. It would be wise, however, for such people to specify their requirements when ordering the package to ensure getting the drivers they need from the outset.

Installation, via the standard Apple Installer, should be familiar to most Mac users, since it is employed to upgrade the system software on existing discs.

This painless process is relatively quick although in my experience not always successful in outcome with Printworks – it took several attempts to get a working system with my Macintosh 512k, despite the Installer informing me that all was well. However, everything worked first time around with the Macintosh SE.

Applications are used as normal and it's only when you come to use Page Setup and Print that you notice anything different. The usual dialog boxes are replaced by fancy iconic ones.

The Page Setup facilities are much as the standard Apple driver provides (see Figure I) but the Print dialog box offers much more in the way of control over printing, allowing separate specification for the quality of text, bit-mapped graphics, and object printing (see Figure II).

Printing options

Also bi-directional printing can be specified and a page preview mode selected where each page is shown in miniaturised form with the option to print or skip (see Figure III). However, this miniaturised page display is always shown when printing occurs, rather like MacPaint, with a "line" cursor moving down the page to show what is currently being sent to the printer.

A printer spooler is built-in and controlled via a DA (see Figure IV), although changes to its size only take effect after you eject the start-up disc, power-off the machine, and ▷

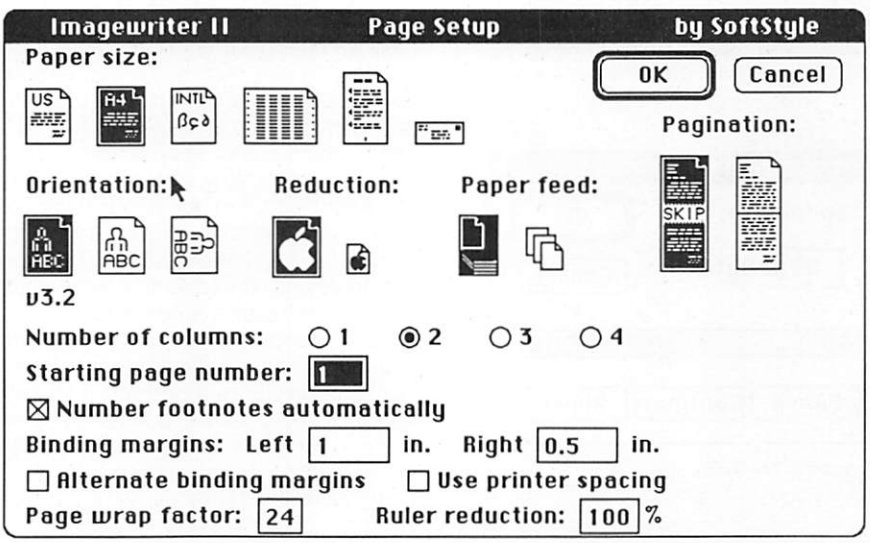


Figure I: The 'Page Setup...' dialog box

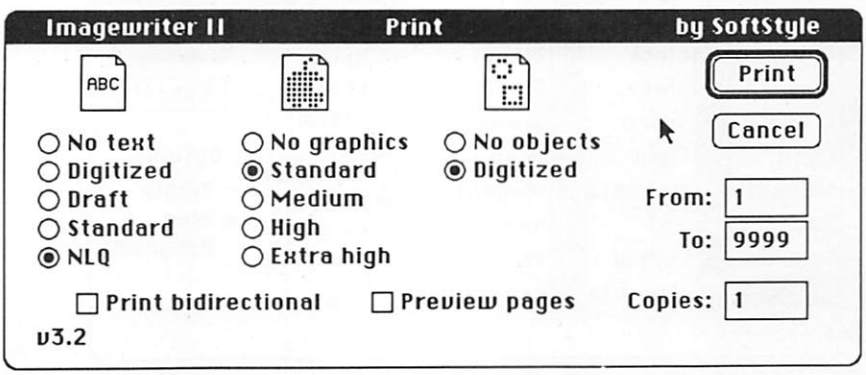


Figure II: The 'Print...' dialog box

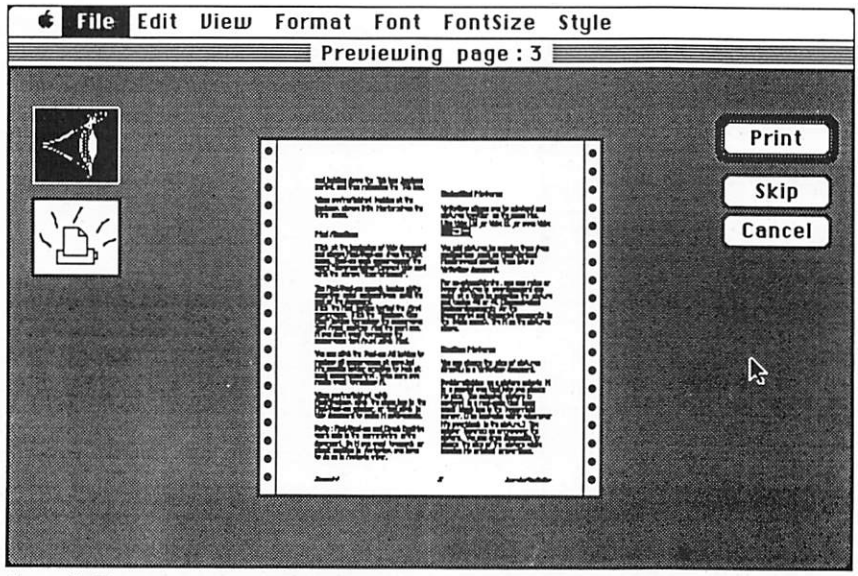


Figure III: The page preview window

◁ restart – a somewhat tedious process, as is the need to select the printer with the Chooser DA everytime you start up a Macintosh with the old 64k roms. In fact, I found this happened with the Macintosh SE as well.

If you are using anything other than draft mode or NLQ (on the ImageWriter II or other printers with such built-in fonts) printing, the spooler size has to be set fairly large to notice any appreciable time saving – about 100k is needed for even a couple of pages of digitised text.

Thus this spooler is almost unusable on floppy-disc based systems (especially 400k ones) except when draft/NLQ printing. When there was insufficient disc space to create the required spool file, no error message was generated and the machine simply froze.

Is the effort of setting up Printworks worth it in terms of the output? Frankly, for monochrome printing my answer is "no".

Selecting the highest quality digitised text, graphics and objects and using this package with both an ImageWriter I and an ImageWriter II and applications such as MacWrite, WriteNow, FullPaint, MacDraw, and MicroSoft Chart, the results were considerably inferior to those produced by the latest Apple ImageWriter driver (v2.6), being less dense and consequently having a more 'dotted' and ragged appearance.

The Printworks drivers did produce the output in about half the time taken by their Apple equivalents, however: The extra speed seemed to be gained by fewer passes of the print head, which accounted for the less dense image on paper.

However, in NLQ mode, which uses the ImageWriter II's built-in fonts, speedy output was obtained with as good a quality as I have seen from a wide variety of printers with such NLQ facilities. Using the Printworks fonts in documents allows accurate WYSIWYG output on paper. However, this is surely not what we bought our Macs, rather than PCs or BBCs, for?

Perhaps the key facility that Printworks offers is colour printing on an ImageWriter II. A specific set of fill patterns used in object-oriented drawing packages, like MacDraw, are allocated to seven colours for solid fill, hatched fill and line fill. The allocation of the colours to the patterns can be manipulated via a supplied DA (see Figure V).

If a colour ribbon is installed in the ImageWriter II no further action is required to get colour hardcopy apart from ensuring that you have used the necessary fill patterns to get the colours required where you want them.

Even text can be coloured, although it is unclear from the screen in MacDraw what colour has been allocated since the fill pattern does show for text. The manual states that Printworks also supports the colour rom calls, as used in packages such as SuperPaint.

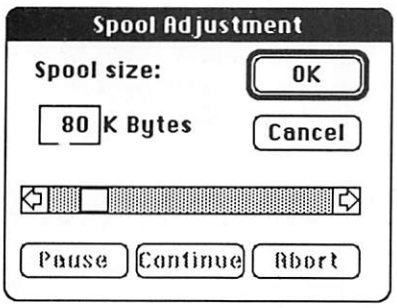


Figure IV: The Spool Adjustment DA window

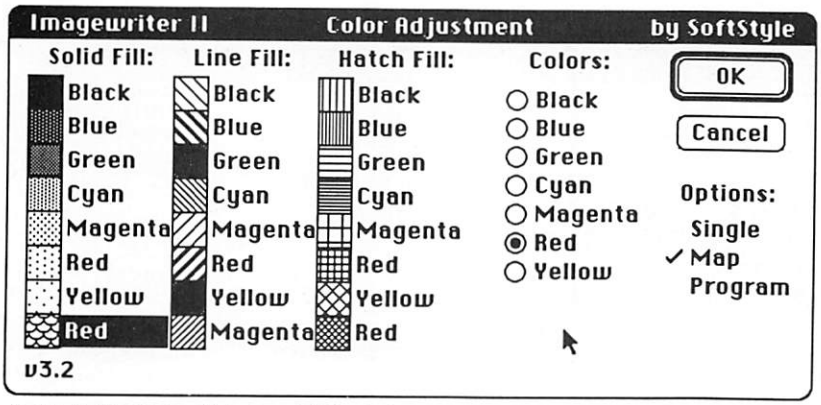


Figure V: The Colour Adjustment DA window

Conclusions

The facility worked well, although largish areas of solid colour were sometimes not of an even density and bleeding did occur on several occasions. These may well be problems associated with the printer, although I found them with both the ImageWriter IIs I tried.

I find that colour printing is a bit of a novelty and of relatively little value to me since most documents that I produce require reproduction and colour is unnecessary or too expensive in this context, even if the quality produced on the ImageWriter were sufficient.

Thus overall, I found this package quite tricky to set up satisfactorily. And it was tedious to have to keep setting after booting up. Contrary to what is stated in the addendum to the manual covering the later System software and Macintosh SE, I found that I had to select the PrintWorks driver via the Chooser each time I booted up the SE in order to getting printing carried out – exactly as on the the 512k model.

While printing is faster than with the standard Apple drivers, I felt that it was of a noticeably lower quality. The strengths of this package are clearly in accessing built-in NLQ printer fonts and colour printing on the ImageWriter II. If you require such facilities then this package is probably for you.

Program: Printworks, Version 3.2
Price: £79.35
Supplier: P&P Micro Distributors, Todd Hall Road, Carrs Industrial Estate, Haslingden, Rossendale, Lancs. BB4 5HU
Tel: 0706 217744
Requirements: Apple Macintosh

□

Take the wider view

Chris Colbourn tries an affordable alternative to megascreens

I RECENTLY worked, albeit briefly, with a large workstation-type screen attached to a Macintosh and really appreciated the benefits that this arrangement brings to a variety of applications. The big disadvantage is the current cost of large screens, which is often more than you pay for the computer itself!

Thus I approached this software with some excitement since its aim is to provide some of the same benefits as large screens using just the standard Macintosh alone and at an affordable price.

Stepping Out, whose function is to provide a user-definable "virtual" screen upon which the standard Macintosh screen acts as a window, is simplicity itself in operation. You can rapidly move around this "large" screen (default size 572 x 720 pixels compared to the standard screen size of 512 x 342) using just the mouse, since, when the pointer reaches the physical screen boundary the display smoothly scrolls in the appropriate direction to reveal other parts of the large screen.

You also have a chance to alter the screen size if the mouse button is held down when the initial dialog box is displayed (see Figure I). The new setting is retained for subsequent installations until changed.

There is a small range of other facilities accessed via Option-Command key sequences selected to avoid clashes with other applications. The most useful of these is Option+Command+Space which toggles between the normal screen and a representation of the whole large screen working area in the right half of the display.

This miniaturised whole screen can itself be scrolled and edited, if your eyes are good enough, although the left side of the display continues to show the normal sized area of screen around the pointer.

A good range of facilities providing the opposite effect – magnification from 2X to 16X of portions of the screen – is also available and could be helpful to visually-impaired users (see Figure II), although the Stepping Out manual refers to another product called inLARGE which Berkeley System Design markets for such an audience.

The remaining facilities allow you to reverse black and white on the screen (of somewhat doubtful value) and a large screen saver equivalent to the standard Apple COMMAND+SHIFT+3 (which still works, incidentally). However, this large screen saver only holds a maximum of a MacPaint-size image, that is 576 x 720 pixels, irrespective of the defined virtual screen (see Figure III).

Although this all seems very useful, there are some software compatibility problems, as there are with hardware large screens on the older Macintoshes (512k and Plus).

Older Mac packages like MacWrite and MacPaint were not written with large screens in mind and hence no benefit is gained by using them with Stepping Out since they only utilise the standard screen size.

MacDraw, however, is made very much easier to use with Stepping Out, and later packages like Cricket Draw, Cricket Graph, and Ready,Steady,Go! 3 automatically size their windows and place dialogue boxes according to the defined virtual screen.

The penalty to be paid for this useful software is that all applications are perceptibly slowed down. Even the Finder appears to work in slow motion, although the actual scrolling around the virtual screen is both smooth and rapid.

If you thought that Cricket Draw was slow normally on a Mac Plus, then you will find plenty of time to make yourself an egg and cress bap while a complex graphic is being redrawn under Stepping Out!

The other penalty is, of course, the memory used by this utility. The manual states that 648 bytes are required for each ▷

Figure I: The installation dialog box of Stepping Out

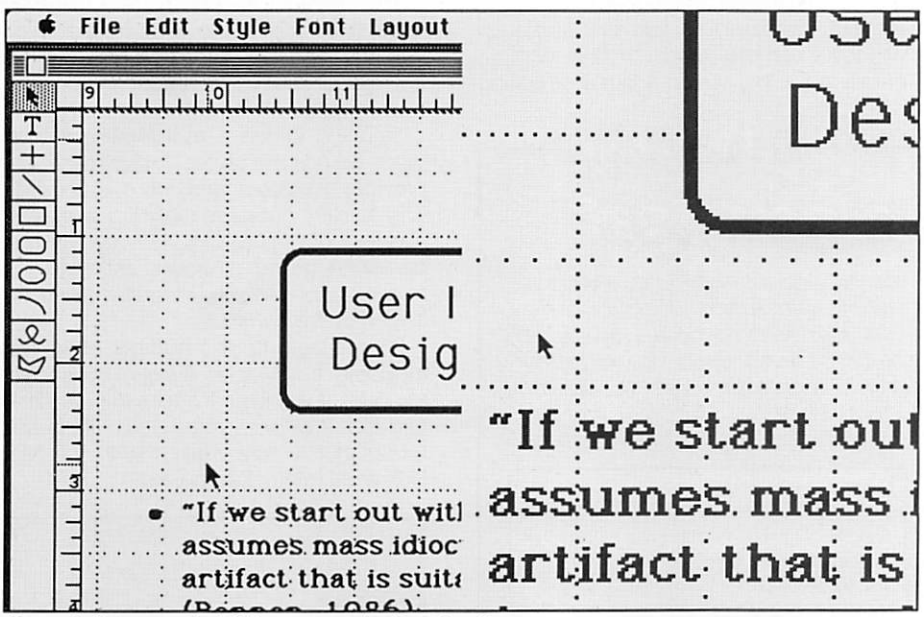


Figure II: Part magnified (2X) screen under Stepping Out

◁square inch of the big screen, and this translates into 130k for a MacPaint page size screen (the smallest worthwhile size in my experience) while a double-page spread can swallow 200k or more depending on the size of your margins and how essential it is to see them.

You are advised of the amount of memory required in the installation dialog box (see Figure I) and the maximum size of virtual screen you can define (2048 x 1368 pixels) absorbs 421k of precious ram.

Clearly this utility suits a wider range of applications on the Mac Plus and I found that one had to be very judicious in its use on the old 512k model, where machine responses were even slower needless to say.

Mac compatibility

It was disappointing – although not unexpected – to find that Stepping Out doesn't work on the Macintosh SE. It deceptively goes through the motions, installs a virtual screen, but only ever uses the standard screen size in the top left corner for display. No doubt an SE compatible version is in the pipeline, however.

The program seemed fairly stable although warnings are given in the manual about the use of screen saving and animation in Switcher, and it appeared to work fully with Servant 0.95. I also found that some strange interactions occurred with cache programs at installation, causing a machine freeze. Once the cache was turned off, everything was alright.

Also, when using the word processing facility in Ready,Steady,Go! 3 you get taken to the right-hand edge of the big screen as soon as your insertion point reaches the right edge of the physical screen and have to use the mouse to get back to the insertion point, whereas with most word processors running under Stepping Out the insertion point always stays visible.

Another potential pitfall for the unwary concerns windows that are left open entirely in an area of the big screen outside of the standard screen region (that is top left). When you shut down and subsequently try to use the document or disc without Stepping Out you will find such windows completely inaccessible without installing the big screen again – or editing the disc.

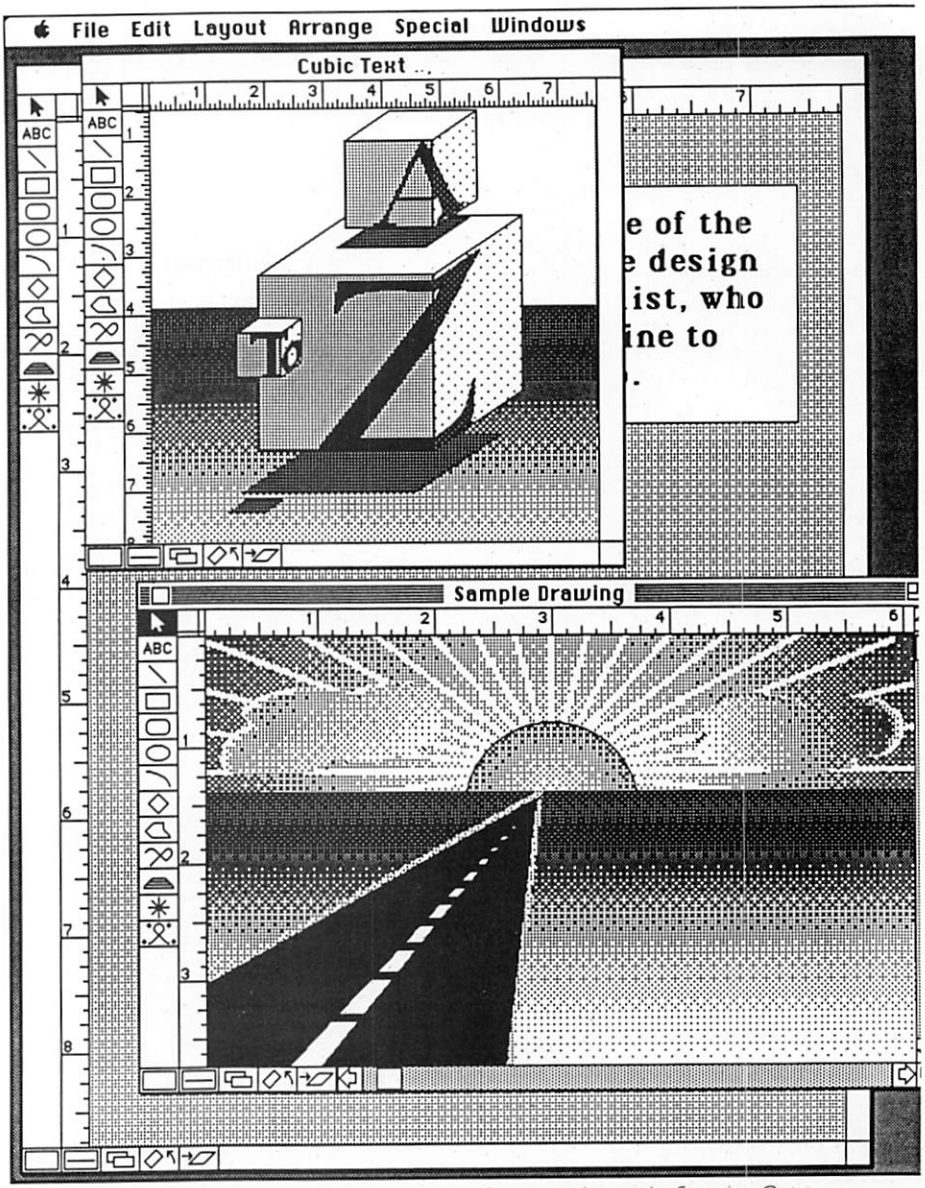


Figure III: MacPaint-sized screen dump from Cricket Draw running under Stepping Out

This problem also exists with hardware large screens. For those of us that work with the same documents on several different machines it is an important point to bear in mind.

Stepping Out is a useful piece of software, despite the caveats I have made, and provides an easier and more economical way to carry out page make-up work with a variety of applications. However, it may be worth giving a similar, although less feature laden, shareware utility called Big Screen INIT a try first.

It's available from a number of sources including the MacTel Bulletin Board, and for $5.00, if you keep it after a trial, you may find that it satisfies your needs, although I found that it only worked with the Mac Plus and System 3.2 onwards.

Product: Stepping Out (Version 1.02)
Price: £86.25
Requirements:
Supplier: MacSerious

□

AppleUpdate

Turning over a new leaf

THIS document processing software is announced for the Apple Macintosh II and should be available in December.

Interleaf automates the layout process for long and complex documents and includes integrated word processing and graphics creation.

Interleaf Publishers graphic capabilities enable you to create sophisticated graphics from simple shapes, to scan in drawings which can then be altered, and to scan in photographs which can be sized, sketched and rotated. And it can generate a wide variety of charts automatically.

In addition it has the ability to cut and paste text and graphics from other Macintosh applications such as Microsoft Word, MacWrite, MacDraw and MacPaint.

Product: Interleaf Publisher
Price: tba
Supplier: Interleaf, Nightingale House, 1-7 Fulham High Street, London SW6 3JH.
Tel: 01-384 1122

Fonts and faces

Lew Norris finds Printrix adds a professional touch

THE lettering produced by my word processor and dot matrix printer has always looked something less than professional – that was my main reason for investing in a modest daisy wheel printer. If I had known about the Printrix Personal Typesetting Software package by Data Transforms, my printouts could have had the professional look for a fraction of the price.

Printrix, packed with different fonts, frees you from tedious text. It works with the ImageWriter, Epsons and most popular dot matrix printers and can print in colour if you have the appropriate hardware.

It can be configured to operate with AppleWorks, AppleWriter, Word Juggler, and WordPerfect. It will also work with other texts if they have been saved in standard Ascii Prodos format. Dos 3.3 format must first be converted to Prodos.

I tried the program out on my IIc with two floppy drives and an ImageWriter printer. Printrix is booted in the internal drive – the disc containing the file to be printed goes into the other. Owners of up-market systems can configure the program for use with a 3.5in drive or hard disc.

The purpose of the program is to enable your word processor to produce textfiles with any mix of around 40 different fonts. You can also print graphics, clip art and twin columns in your copy. Extra fonts are available in Fontpaks if required.

The package consists of two double-sided discs containing the typesetting program, the configuration program and two sets of extra fonts. There is a softbacked manual of some 150 pages, a card listing functions and commands for handy reference and a list of supported hardware, software and interface cards. All this comes in a rigid plastic box.

Working copies of the original discs are easily made as they are not copy-protected. The program must be configured for your computer, interface, printer and word processor – a once-only operation.

I found the hands-on instructions in the manual easy to follow. There are a number of Ascii texts on the Printrix program disc which demonstrate the printing of documents, labels, graphics and double columns.

The double-column function is impressive – when it works. Sometimes the two are slightly out of alignment as the printer reverses to the top of the page to begin the second column.

I used AppleWorks to create a brief paragraph, printing it repeatedly to use virtually all the fonts as there are few printed examples in the manual. This is presumably because the general appearance of the lettering depends upon which printer is used. All the available fonts are listed by name, however.

There are two ways of using Printrix: Either by commands embedded in the file to be printed or by commands issued through menus in the program itself. Additionally, some of your word processor's native commands are supported. The

The embedded commands are inserted while you are creating the text on your word processor. Using these commands, you can change fonts as often as you like (even within a word), insert graphics and otherwise arrange and format the text.

Menu commands are used after the text has been created on your word processor and saved on disc. Many additional or last-minute adjustments can be made if required.

A graphic must be called from a text file by an embedded command. However, the position, magnification and so on of a graphic is controlled by a combination of embedded and menu commands. Compatibility with several graphics programs is claimed. My Mousepaint graphics reproduced well, as did the clip-art graphics included on the configuration disc.

When you come to print, you must input the Prodos pathname of the file to be printed. Make sure you know this because Printrix does not let you summon the actual file or filename on screen. A series of menus lets you set any number of parameters and that layout can be saved as a file for re-use if desired. LAY.LETTER is such a file already on the disc for demonstration purposes.

A LAY.file can of course be kept, changed or deleted as you wish. The thing to remember is that files preceded by LAY are not textfiles but simply stored sets of parameters to be applied to a textfile, preceded by TXT. You don't have to follow this naming system, but it helps.

Printing is a slow business; a line of text takes five uni-directional passes of the type head and graphics take even more. Also, it's a little irritating that you can't actually see your file on screen while Printrix is operating.

Anaemic ribbons can be induced to produce darker copy by increasing the number of passes the type head makes. The document then takes longer to print, naturally.

The only time I had problems with the program was when I tried to print a TXT.file I had named as a LAY.file. The screen display disintegrated into scrolling code and forced me to reboot despite my best efforts.

It is questionable whether this software could be used by businesses as an alternative to a professional service, but it must be quicker than posting documents off for typesetting. It would hog the office printer for quite a while though.

I found Printrix a lot of fun and – be warned – used reams of paper just playing around. There is plenty of scope for the imagination when all the fonts you fancy are at your fingertips.

Product: Printrix
Price: £63.25
Supplier: Data Transforms/MGA Microsystems, 140 High Street, Tenterden, Kent 7N30 6HT
Tel: 05806 4278

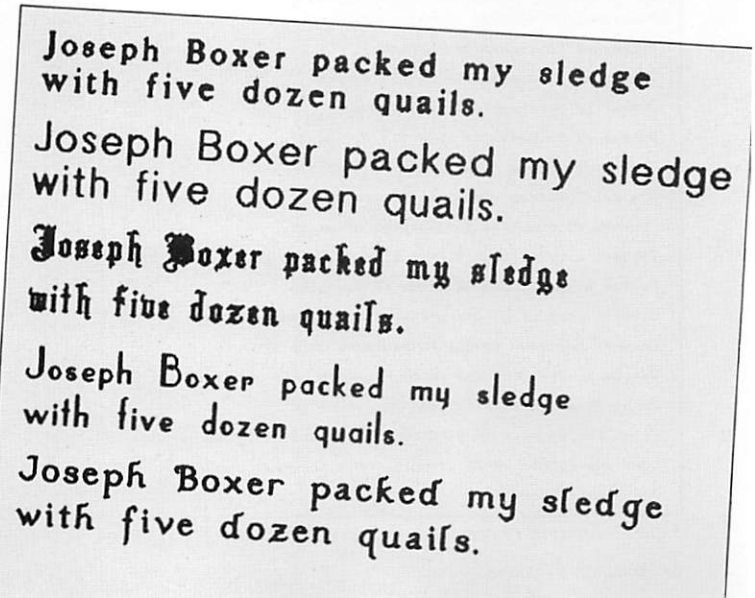


Figure 1: Sample fonts: From top: Caslon, Helvetica, Old English, Parisian and Marisela

Creative tools for creative people

Jaromir Smejc with part 2 of his series on imaginative computing

THE exact meaning of almost any word in any language can be a bit fuzzy, and in the world of fast moving technology can change with alarming rapidity. This mini reference guide of computer terms related to creative computer work is only to be thought of as first aid.

Analogue input: A continuously variable quantity (such as a resistance reflecting the position of a knob or paddle or joystick) which the computer can convert into data to be used by a program.

Bullet: Large dot used to add emphasis to text, for example to precede items in a catalogue or price list.

Buffer: A memory region to store characters and/or control codes. Specifically, printers have built-in buffers, from 80 (one line) to several thousand characters. There are also external buffers with large memory capacities on the market. Buffers are useful because you can print and work on the computer simultaneously.

CAPS: Capitals: Writing headings and such in upper case letters is also known as "all caps". Use caps sparingly – they are good eye catchers as headlines but reading longer pieces of text printed only in upper case is difficult.

Character: Used here as an expression, not only for an alphanumeric but also for special symbols, accents and so on in a font. There are usually a limited number of them, commonly 94-96.

Character set: All the characters which you can type are collectively known as a character set. The terms set and font are often used interchangeably.

Clip art: Popular name for professionally produced pictures which you can cut out by hand or computer – with the right software. The quality of available clip art varies considerably. Cutting pictures by hand may seem to be a clumsy way for the computer user but often you will have no choice, especially if you do not have the use of a **Scanner** or a large library of electronic clip art.

The term Clip Art in connection with Apple II software often means pictures in the Newsroom format. Pictures in the Print Shop format are usually called Print Shop compatible. There are programs on the market to convert from one format to the other which, while they differ greatly in their features (see Figure I), perform basically the same functions.

Colour: The older Apple II computers use a hi-res mode with six different colours and a lo-res mode with 16 different colours. The IIgs has, in addition to these hi-res and lo-res modes, its own super mode which can use 16 different colours selected from a palette of 4096 in one line, thus allowing 256 distinct colours to appear on the screen.

There is an even more super mode with

	PS GRAPHICS LIBRARY Broderbund	PS LIBRARY - HOLIDAY EDITION Broderbund	PS GRAPHICS VIEWER Uptime (disk upgrade)	PS GRAPHICS MAKER Big Red Apple Club	PS LOVER'S UTILITIES Big Red Apple Club	CLIPCAPTURE Clipcapture	GRAPHICS MANAGER On Three	MINIPIX Beagle Bros	GRAPHICS EXPANDER Springboard	CHRISTIAN SYMBOLS Tack/Parry	DAVKA GRAPHICS Davka	REMARKS
Number of PS graphics (each disk)	120	70	13	60				200	300	~ 85	~135	~ Special Christian symbols
Number of PS borders (each disk)		14								~ 10		~ Special Judaic symbols
Number of PS founts (each disk)		10										~ Special Christian symbols
Number of PS compatible Hi-res screens		12										
Number of Newsroom clip art pieces						185						
Number of PS Graphics viewable at once			1	9	1			4				
Convert Newsroom clip art to PS Graphics												
Convert Newsroom photos to PS Graphics						Y						
Convert PS Graphics to Newsroom clip art						Y						
Convert a portion of Hi-res picture to PS graphics						Y		Y	Y			
Design Hi-res pictures using PS Graphics						Y		Y				
Convert part of Hi-res picture to Newsroom clip art						Y						
Convert Newsroom photos to Newsroom clip art						Y						
Design Hi-res pictures using Newsroom clip art						Y						
Print PS graphics with name					Y							of all the graphics on any library disk
Print PS Graphics im different sizes and positions							Y					
Copy any number of PS graphics onto the same page							Y					
Graphics editor								Y	Y			

Figure I: Features of commercial graphics software

a pixel resolution of 640x200 rather than 320x200 which can display four colours per line from the palette, thus allowing 64 distinct colours on the screen.

On the older Apple IIs, choosing colour combinations other than white on black (or black on white) may give illegible or distorted characters with colour fringing effects. There is more on the rules of colour displays in the Apple Reference Manuals.

Colour foil printouts: With special colour foils you can create your ideas in colour from black and white laser printer originals or dry toner photocopies of normal printer output. See **Colour foil printout processes** under **Further techniques** and **Hints.**

Copyright: A word to the wise: Don't forget the copyright laws and the Apple users' ethic! It is an entirely different matter making, for instance, a poster for home use from your favourite game screen and making and selling T-shirts with the same motif without the copyright holder's permission. Copyright laws vary from country to country – please observe them. Clip Art on disc, or in a special paper edition (as in Instant Art Books) is copyright free because you have paid for it.

Copy: Using a copier for the final product has many advantages – you can use the traditional Paste-up methods to create the final **Page layout** or you can reduce the size of the printout, which often results in a better looking product with increased final **Resolution**, that is with more dpi.

Or you can use either multicolour copiers or one-colour (in which it is possible to change the black toner to a coloured one) to produce copies with multiple colours by a multiple pass method.

It is possible to copy a design on to **Transparency film** to produce overheads directly and for special purposes such as multiple layout designs for final mixing on the copier.

Permanent polyester "paper" (for example Permacopy and Xeroperm) is obtainable. This looks, feels, and handles like paper but is unaffected by normal hazards such as water, oil, mildew and uv light. This paper is ideal for documents in constant use such as price lists, on-site manuals, archive records and so on.

If you use single colour transparencies you will obtain substantially better results by using xerographic transparency film which is clear rather than matt. There are several types available according to the kind of copier – liquid or solid toner.

Cropping: Choosing an arbitary portion of the hi-res screen for printing. All good programs destined for work with hi-res graphics and the programs/cards which interrupt others (as in Snapshot with Printerrupt) have this ability.

It is necessary, for example, to translate part of a hi-res picture to the Print Shop format. Cropping is not essential for the final layout because you can always **Paste-up** by hand, but it is convenient to have it.

EPSON FX-85 CODE	EPSON VALUE 'm'	FONTWORKS DENSITY #	SNAPSHOT DENSITY #	MODE	DOTS /8"	DOTS /1"
ESC ? K m	Ø	1	Ø	Normal density	48Ø	6Ø
ESC ? K m	1	2	4	Dual density	96Ø	12Ø
ESC ? K m	2	3	5	Dual density, double speed	96Ø	12Ø
ESC ? K m	3	4	6	Quadruple density	192Ø	24Ø
ESC ? K m	4	5	2	Display graphic	64Ø	8Ø
ESC ? K m	5	6	1	Plotter graphic (1:1)	576	72
ESC ? K m	6	7	3	Display graphic II	72Ø	9Ø
ESC ? K m	7	none	none	Plotter graphic II	1152	144

Figure II: The codes vary from product to product, but the density remains the same

Density: Is the spacing of dots on paper or screen, usually measured in DPI (dots per inch). Printer density usually refers to the horizontal density which you can control through software or hardware.

For example, the Epson FX-85 can print in eight different densities from 60 dpi to 240 dpi for a vertical to horizontal ratio of approximately 1.0 use 72 dpi.

Figure II shows a table on the diverse terms used for the same density in various product descriptions, while figure III shows sample printouts in different densities. As the number of dots per inch gets larger (higher density) the dots are printed closer together, therefore the image is darker and the printed characters or picture gets smaller. With normal printing (sometimes called portrait) you will achieve a smaller width but the height remains the same.

Printing sideways (sometimes called landscaping) when the picture or text is rotated 90 degrees causes the width to remain constant but the height to decrease. Be careful – densities are described differently in different products.

For example, to obtain a **Ratio** of 1:1 with the Epson FX-85 printer, you need density 6 in Fontworks, density 1 in Snapshot/Printerrupt and the value of 5 for m in the Epson escape sequence **Esc ? n CHR$(m)**.

Print density also affects the amount of text which can be printed on one page, because by increasing the horizontal density you will get more characters per inch in portrait mode or more lines in landscape mode.

One thing to note with the two Epson densities denoted Dual Density and Dual density-Double Speed is that the dimensions of printed output are exactly the same. The former prints each dot while the latter only prints every other dot, resulting in a lighter printout.

Note that density is not the same as **Resolution**, even if it is also expressed in dpi. For example, quadruple density prints four dots on paper for every dot on the screen, but the resolution is determined by the dot on the screen which thus stays constant.

● *To be continued next month . . .* □

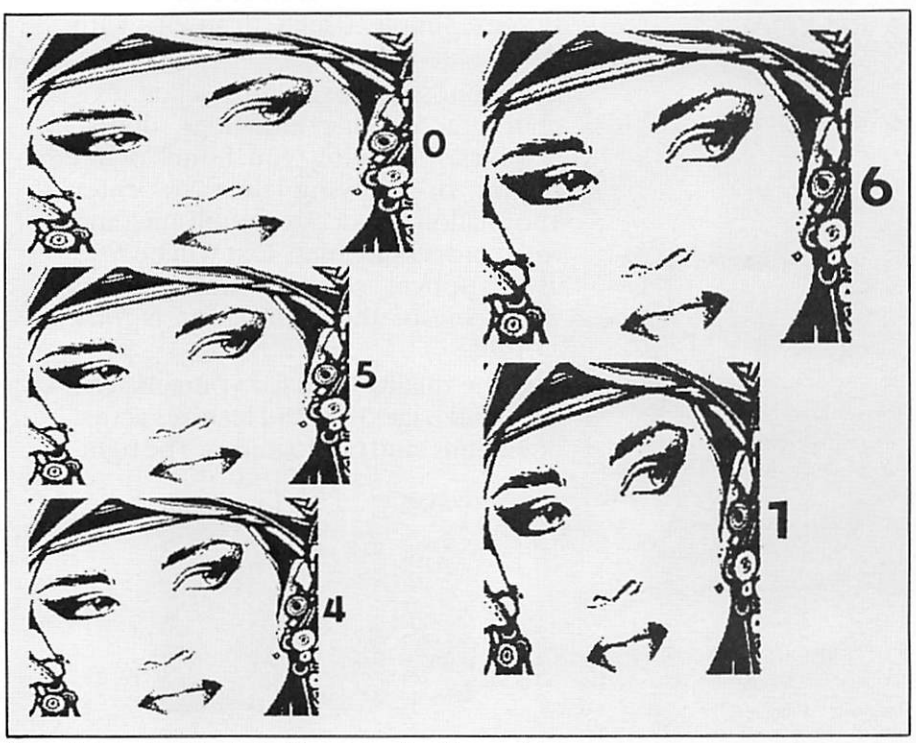
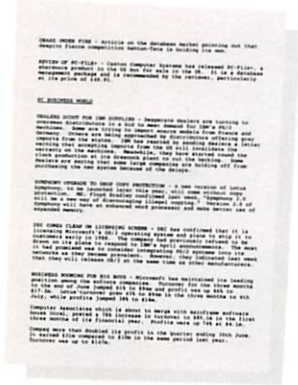


Figure III: Sample printouts in different densities. The numbers denote Epson code M – the density command

Reflect a better image



PC SCAN PLUS AND DEST SOFTWARE

How do you get documents into your system? Simple. Use PC Scan Plus with DEST Software.

In seconds, PC Scan Plus scans text, photographs, line drawings, logos, graphics, – saving you hours of re-typing or drawing time to enter information into desktop publishing and word processing files. Text will be read using optical character recognition, which means the information is *fully editable.*

And the quality? See for yourself. The left-hand page of this ad features actual documents and photographs. The right-hand page shows the scanned results. This text, photographs, our logo – everything is scanned.

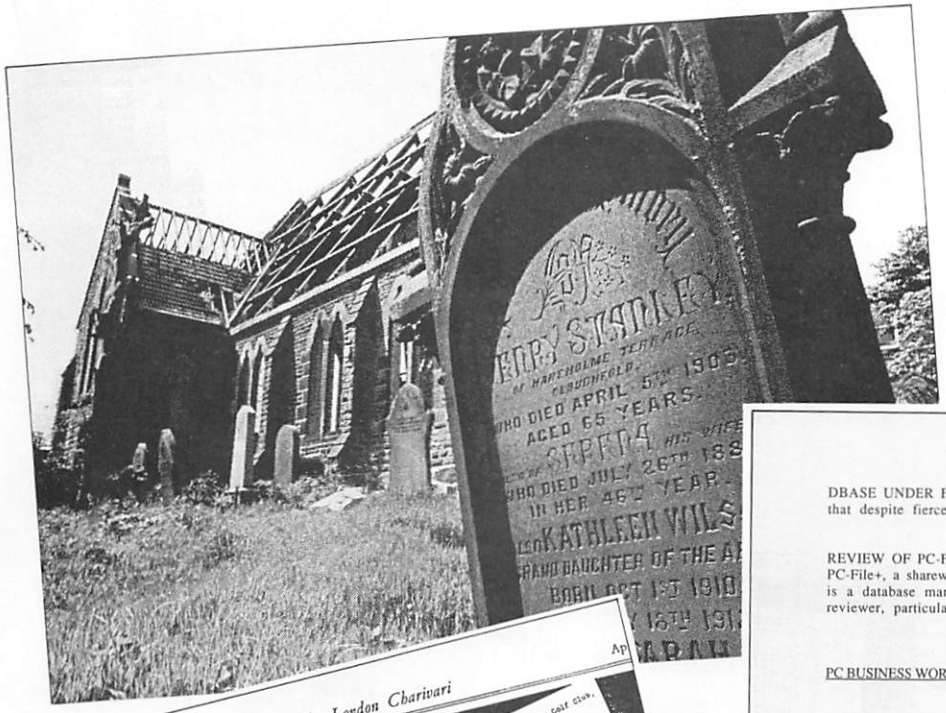
Impressed? Yes, so were we. That's why we took the package on. And now that you want to know more, contact your dealer or give us a call.

ALSO AVAILABLE
FOR THE IBM PC

P & P MICRO DISTRIBUTORS PLC

Todd Hall Road, Carrs Industrial Estate, Haslingden, Rossendale, Lancs. BB4 5HU. Tel: 0706 217744
Telex: 635740 PETPAM G.
1 Gleneagle Road, London SW16 6AY
Tel: 01 677 7631 Telex: 919220 PPMICR G.
Dale Street, Bilston, West Midlands WV14 7JY
Tel: 0902 43913

P & P MICRO DISTRIBUTORS PLC



DBASE UNDER FIRE - Article on the database market pointing out that despite fierce competition Ashton-Tate is holding its own.

REVIEW OF PC-FILE+ - Caxton Computer Systems has released PC-File+, a shareware product in the US but for sale in the UK. It is a database management package and is recommended by the reviewer, particularly at its price of £49.95.

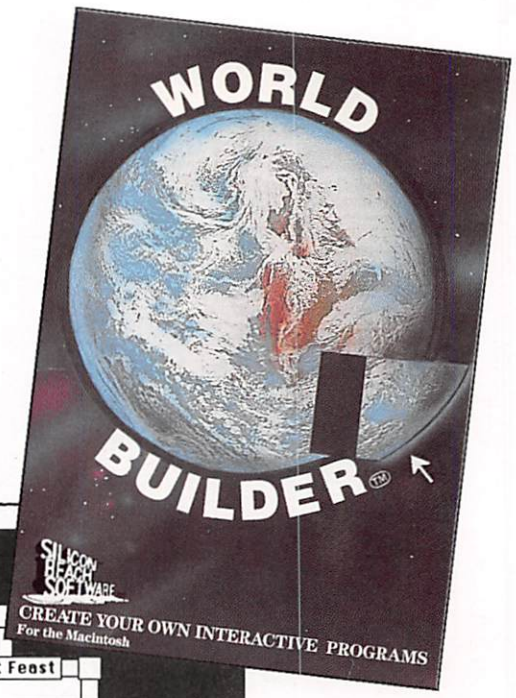
PC BUSINESS WORLD

DEALERS SCOUT FOR IBM SUPPLIES - Desperate dealers are turning to overseas distributors in a bid to meet demand for IBM's PS/2 machines. Some are trying to import scarce models from France and Germany. Others are being approached by distributors offering grey imports from the states. IBM has reacted by sending dealers a letter warning that accepting imports from the US will invalidate the warranty on the machines. Meanwhile, they have started round the clock production at its Greenock plant to cut the backlog. Some dealers are saying that some large companies are holding off from purchasing the new system because of the delays.

SYMPHONY UPGRADE TO DROP COPY PROTECTION - A new version of Lotus Symphony, to be launched later this year, will come without copy protection. MD, Floyd Bradley confirmed last week, "Symphony 2.0 will be a new way of discouraging illegal copying." Version 2.0 of Symphony will have an enhanced word processor and make better use of expanded memory.

DEC COMES CLEAN ON LICENSING SCHEME - DEC has confirmed that it is licensing Microsoft's OS/2 operating system and plans to ship it to customers early in 1988. The company had previously refused to be drawn on its plans to respond to IBM's April announcements. The most it had promised was to consider integrating PS/2 systems into its networks as they became prevalent. However, they indicated last week that they will release OS/2 at the same time as other manufacturers.

Brave new worlds



THERE comes a time in every user's life when you look at a piece of software and think "I could have written something like that". It's a similar phenomenon to the adage that everyone has a book inside them just waiting to be written.

The problem is of course in translating your creative insights into hard copy. While most of us can write to some degree, the programming skills necessary to produce a recognisable product are not as widely available.

To descend to the particular, I've played many graphic adventure games and thought up many ideas of my own. I've even drawn out maps and planned the outline of games. But to actually translate these into a professional-looking graphic adventure is beyond me.

Or at least it was until I received a review copy of World Builder.

World Builder is an adventure game's equivalent to Lego. It provides the building blocks and the means to join them together. All you need is the imagination to use all the different pieces to create your own unique product.

And, like Lego, you need to decide which pieces *not* to use in order to avoid an over-elaborate construction which collapses under its own weight.

The Lego analogy can be taken to its conclusion. If you've ever seen some of the professional Lego constructions you know how a simple kid's toy can create amazing dinosaurs, rockets and scenes from the movies. World Builder, too, can be used to produce really complex, professional games – more about this next month.

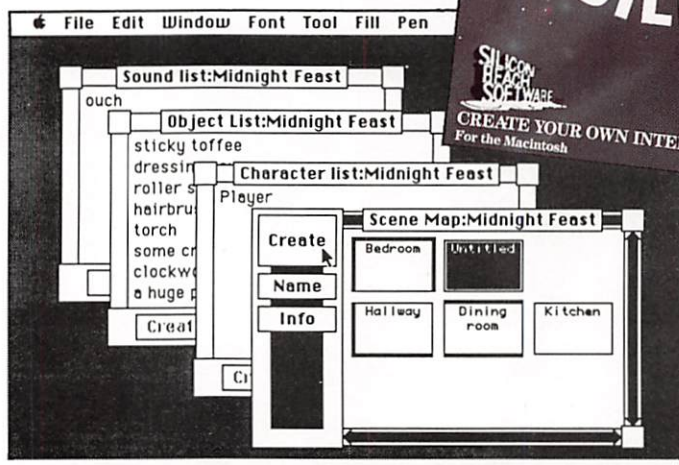


Figure I: The four basic World Builder windows

World Builder comes on a single disc with a thick but clear manual. You are told to make a copy of the disc and are reminded frequently if you use the master disc. There is a small demo game on the disc and a step-by-step guide in the manual on how to create another game.

Working through the guide in the manual is an excellent tutorial and is strongly advised. I adapted the storyline a little as I worked through it and ended up with a nice little customised game which will be discussed in greater detail next month.

Creating the game is done using a template which you then adapt to suit yourself. There are four basic windows covering scenes, characters, objects and sounds (see Figure I). Pull down menus allow you to manipulate selected items on the windows – for example copying a sound on to the clipboard or entering data for a scene or object (see Figure II).

Since bit-mapped images take up much more memory than object-mapped images, the graphics editor is designed to let you create either. Major sections of the scene, such as walls, doorways and so forth can be done using the various graphics tools such as rectangles, ovals/circles, and polygons.

These can be filled, resized and repositioned, placed in front or behind other objects. Quite respectable pictures can easily be created, depending on your own graphics abilities (see Figure III).

In addition, you can use graphics from

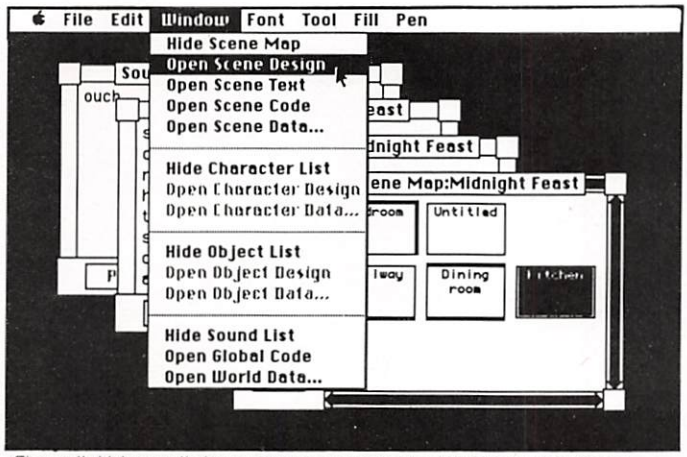


Figure II: Using pull-down menus to open the kitchen scene design

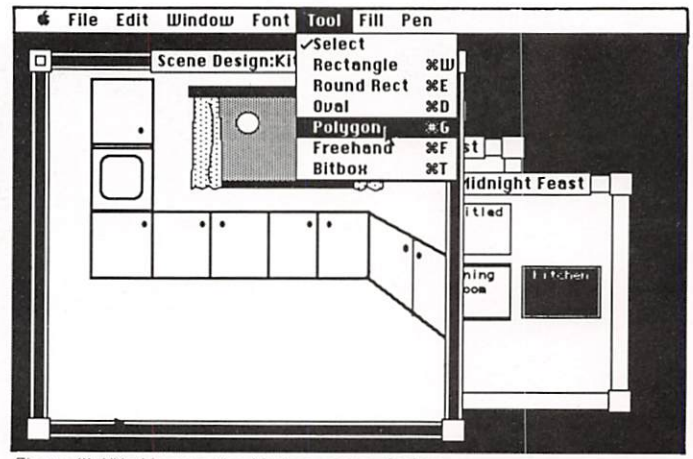


Figure III: Working on the kitchen scene design

other applications, games or digitisers, although these are usually converted to bit images and so take up considerably more disc space. Both kinds of images can be used on the same scene so it is possible to bit image the fine details on top of larger objects.

Items used in the game, such as lanterns, weapons, treasures and so on can also be drawn and manipulated. This means that you can incorporate code to allow the player to click on objects in the game in order to pick up, move and otherwise interact with them without having to use the keyboard.

The World Builder disc comes ready with a small sound library and a utility program called Sound Converter which takes sounds created with the Impulse Audio Digitizer (previously the MacNifty Audio Digitizer) and converts them to World Builder format.

Sounds can be used throughout the game either as atmospheric background (for example a crackling fire in the hearth) or as part of the action (for example a door creaking as you open it).

The sound library on the disc has 16 sounds but there are ways of getting more even if you don't have a Audio Digitizer. You can use the sounds from other games created with World Builder or you can buy sets of sounds from Silicon Beach Software.

There are three sets, roughly classifed as Fantasy/Adventure, Space/Sci-Fi and Wild West/Outdoors. Each set consists of two 400k discs with over 40 sounds per set. Some of the sounds are really good, most are average to boring on their own, although they could be invaluable in your game.

However, World Builder is not just a game creator. Its applications are more far-reaching than that and, to use the old cliche, are only limited by the user's imagination. In the second part of this review I will give some of the other uses of World Builder as well as looking at the end product in more detail.

Denise McKnight

Product: World Builder
Price: £91.95
Supplier: MacSerious, 17 Park Circus Place, Glasgow G3 6AH

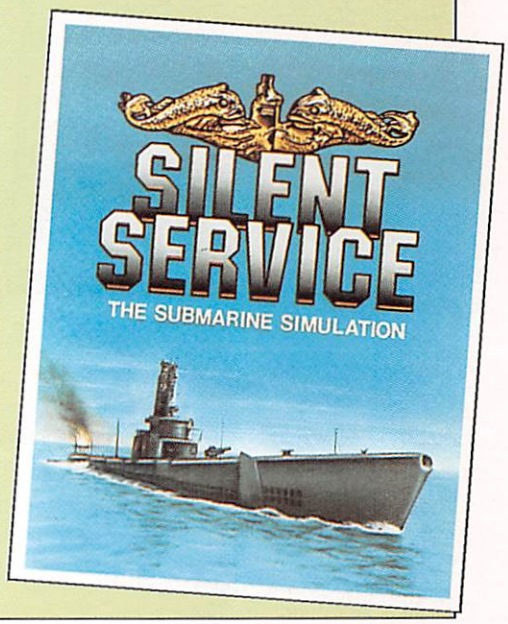
Underwater warfare

SILENT service is a simulation which has you captaining your own World War II submarine in the South Pacific.

The mission you undertake will have you facing single ships as well as heavily escorted convoys.

All the critical battle stations are featured, such as the engine roon, conning tower and bridge. By careful use of the accurate maps and charts you can prepare you movements using the sophisticated attack plotting system.

Product: Silent Service
Price: £24.95
Requirements: Apple IIgs
Supplier: Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA.
Tel: 0666 54326



Gnome on the range

MY trek through the PCW show was halted by the striking visage of Ingrid – a gnome.

Ingrid is the mascot for and heroine of Level 9's new three-part adventure Gnome Ranger. A sophisticated adventure system and emphasis on storyline and text prepares the ground for an unusual game.

A quick flick through the Gnettlefield Journal – Ingrid's diary and a parting gift from the Institute of Gnome Economics – reveals the story to date of our illustrious heroine.

Yet Ingrid has a problem – she is incorrigibly bossy. An unfortunate incident transports her far from her farm, but not discouraged she begins to walk home encountering noisy eagle chicks, sulking doors, centaurs, llamas and nymphs.

The game is written in the past tense with a new and different flavour from previous Level 9 adventures. Gnome Ranger is divided into three themes – Animal, Vegetable and Mineral – and uses the facilities of Level 9's KAOS system.

Pete Austin designed the game with the able collaboration of Mike Austin, Godfrey Dowson and Peter McBride. The aim was to produce a lighthearted game with good text, puzzles and digitised pictures – and the design team succeeded.

Pam Turnbull

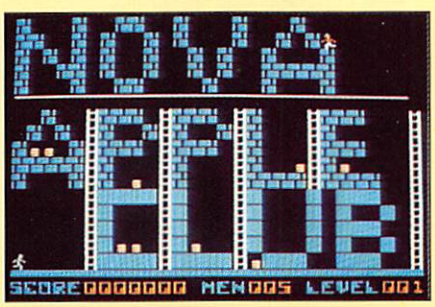
Product: Gnome Ranger
Price: £14.95 (Macintosh), £9.95 (Apple II).
Requirements: Macintosh and Macintosh Plus. Apple II version forthcoming.
Supplier: Level 9 Computing, 5 Mendip Road, Crown Wood, Bracknell, Berkshire RG12 3XG.
Tel: 0344 487597

Keep on running

WITH software prices as they are, it makes a pleasant change to find a game that doesn't cost an arm and a leg.

Just available in the UK is a disc with an extra 150 screens for Lode Runner which, at less than £7, works out at rather less than 5p a screen. And a Lode Runner screen can be a game in itself.

For the uninitiated, Lode Runner is a straightforward ladders-and-levels,



dodge the baddies and get the loot game. No fancy graphics, minimal sound – and totally addictive.

The add-on disc works with both Lode Runner and Championship Lode Runner and installation couldn't be simpler: Boot Lode Runner, enter edit mode and press P to play. And that's it – 150 new screens to master.

All I need now is a toggle to turn Lode Runner into a spreadsheet when my extended lunch hour gets interrupted.

Product: Lode Runner Screens
Price: £6.95
Requirements: 64k Apple II (and Lode Runner)
Supplier: MGA MicroSystems, 140 High Street, Tenterden, Kent TN30 6HT.
Tel: 05806 4278

Road runner

Program Ferrari Grand Prix
Price: £59.95
Supplier: Bullseye Software/Macserious, 17 Park Circus Place, Glasgow G3 6AH
Requirements: Macintosh 128, 512, Plus & SE

◁ FERRARI Grand Prix is a racing car simulator that pits you against two computer opponents on the Grand Prix course of your choice.

In theory it all sounds very simple: the mouse is moved left and right to steer and the number keys change the gears and to complete your controls the spacebar provides the brake. There is no accelerator as it is assumed that when you are not braking you have your foot hard down.

Having said that, the game does require a very delicate touch to prevent you spinning off the track. And, if you try to move up the gears too quickly you will not go very fast at all.

The trick to driving round the course is to keep your eye on the road ahead, which is rather a pity as the graphics of your car, the background and the others speeding past you are quite good. You even get a glimpse of them in your two wing mirrors before you are overtaken.

The illusion of movement is quite good too, but I would have liked to see more trackside objects zooming past. As it is you have to be content with a few angled lines, the white lines on the road and the background gently scrolling to and fro. The road snaking and twisting in front of you is the major indication that you are on the move.

You can fine-tune your car by altering the gearing ratios and also handicap your opponents by limiting their top gear. In this way you can give yourself a sporting chance while you are learning the trade of driving very fast.

Like a lot of Macintosh games, Ferrari Grand Prix allows you to add your own touches to the design of the track and the background.

The background is in a MacPaint file, hence you can copy it and make alterations.

The track is a little more tricky to design however, Being made up from a number of sections of track. Each section can be straight or curved with the angle of the curve being selected from preset sections – it's rather like making a model train layout.

In operation this is a little clumsy, and copying a real track is not as easy as you might think. I can see the programming reasons for having this form of track design, but it would have been possible to implement this aspect in a better way.

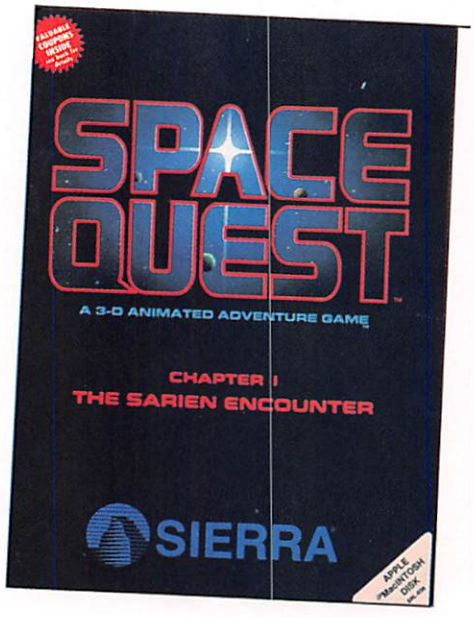
The track can be quite large as there are five different levels of zoom as well as scroll bars on the windows. You can only save a complete course and not one in the process of being designed. However, you can get round this by adding a temporary section to close the circuit.

Never having driven a Ferrari at speed around a race track it is difficult to tell how accurate the simulation is, but it certainly has you keyed up and tense as you play.

Like most good games you can make some sort of stab straight away and practice and get better. However, I don't think it would take long for boredom to set in – but perhaps that is the nature of Grand Prix racing.

Mike Cook

Star pirates



Program: Space Quest
Price: £29.99
Supplier: Sierra On-Line c/o Activision, 23 Pond Street, Hampstead, London NW3 2PN.
Tel: 01-431 1101

SPACE Quest is very much in the mould of Sierra On-Line's King's Quest though the plot this time concerns a planetary system called Earnon whose sun is slowly dying.

Scientists on nearby planet Xenon have been working on a device called the Star Generator with which they hope to convert one of the system's lifeless planets into a new sun. The mind boggles just thinking about it – "Hey, guys, let's make a sun!" Still, this is science fiction so anything goes.

The development team for this project are housed on the space laboratory Arcadia aboard which you are cast in the role of Roger Wilco (groan!), a janitor (but greater glory awaits, no doubt). Unfortunately, some Sarien space pirates have gotten wind of the device and have attacked and boarded the lab.

The game commences as you creep out of a closet where you had been taking a crafty nap, loud explosions, laser blasts and screams of dying crewmates having woken you from your janitorial dreams.

A graphic representation of the current location fills most of the screen. Across the scene and in and out of doors and lifts toddles Roger whose movement is controlled by joystick or mouse. When he reaches the edge of the screen, the disc drive whirrs for several seconds and a new scene appears.

This constant disc accessing tends to slow the game down and much of what atmosphere is generated is dissipated by the delays when you are trudging from screen to screen.

Roger's movement can operate at three speeds: Slow, normal or fast. Fast is best for zipping through scenes, but positioning Roger precisely (before objects or doors, for example) then becomes a headache. Switching to slow at such points is recommended.

All other commands are input at the keyboard. To look at an object, for example, you must position Roger close to it and enter "Look at" and the name of the object.

Unfortunately, the graphics aren't terribly good and identifying objects becomes more difficult. Since you must know what the object is called before you can check it out, the gameplay can become a little frustrating.

No rooms are described automatically – you have to specify "Look at room" or "Look room" before you are told. It is in this description that the names of some of the objects in the present location can be found.

The secret of this type of game is to

Rule Britannia

AFTER three Ultimas you could be forgiven for thinking that Origin had exhausted the possibilities of adventuring in Britannia. After all, the evil triad – nothing to do with Charlie Chan – have been vanquished and peace should reign.

But no, evil yet abounds in isolated pockets, the hearts of men and at least one side of the program discs. I say one as I've not been able to advance very far yet.

Given the scenario, I'm inclined to come down fairly firmly on the side of abounding evil, as the quest of the Avatar "is to know and become the embodiment of the eight virtues of goodness".

And to save you the effort, looking up Avatar in the dictionary doesn't shed much light.

Snide comments aside, those unfamiliar with the Ultima series are in for a treat: Four sides of adventure to go at, with hundreds of characters, scenes and mazes.

And with such a nebulous quest you can unashamedly wander around the dungeons looking for dragons to exterminate.

The "getting started" routine will dump you in one of several roles, according to your responses to an aged gipsy crone who serves as Origin's version of central casting.

I answered her contrived questions honestly and ended up as a Ranger, a Robin Hood lookalike cursed with a desire to improve the lot of the inhabitants of the realm.

Allegedly a faultless tracker and well-versed in woods lore I rapidly got lost and shortly thereafter expired – I blame the Ranger's insistence on wearing leather armour.

Reincarnated and feeling crafty, I tried to con the gipsy the second time around. Feeling nobly pleased with my priggish answers I was less than gruntled to emerge as a Mage – no armour, no weapons worth a lick and no chance of surviving long enough to acquire any spells.

I did persevere (you get a lot of lives in Ultima IV) and lurched around enough screens to get into the game, talking with characters, exploring dungeons, battling orcs.

It is addictive, if frustrating and the opportunities for exploration are endless.

One thing though – don't rush in hacking down all and sundry. My Mage persona didn't even last one round with Lord British who, I later discovered, is the game's ultimate goodie. If all else fails, read the instructions.

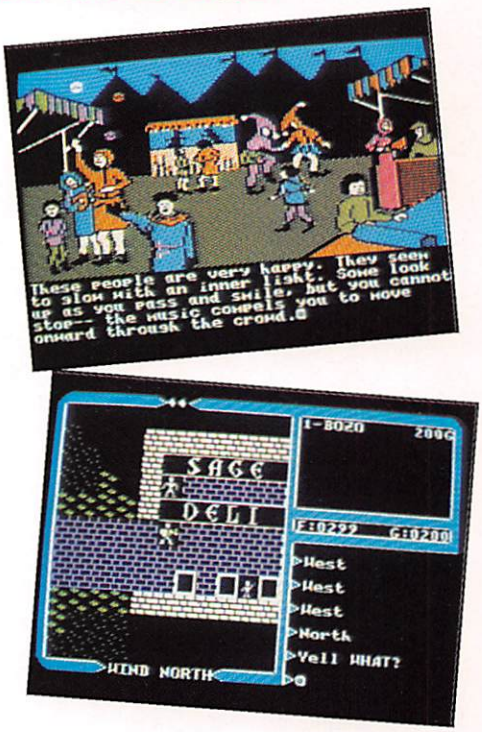
I trod a little more warily next time, and only picked on the child out of spite and a desire to get at what was in the chest he was lurking around: Even he gave as good as he got.

In fact the only bright spot of that foray was an encounter with a merchant, which produced the comment "Merchant critical": I think I'd be inclined to be critical if someone was beating me about the head with a seven foot staff.

Played seriously (or at least with survival in mind) the game is entertaining and quite fascinating. Well, do you know what an Iceballs spell can do?

Mind you, you've got to collect the ingredients before you can cast a spell. No eye of bat and tongue of whatever here – ginseng, bloodmoss and mandrake are the order of the day.

There are enough puzzles and plots here to keep the most jaundiced adventurer tapping at the keyboard, though it does take a while to master all the commands: Keep the playing guide handy.



Packaging is excellent – spell book, potted history, play guide and assorted useless pretty bits to add atmosphere. Graphics are adequate and make up in quantity what they lack in quality: Sound is minimal and annoying – but optional.

Ultima fans will need no encouragement to buy Avatar – and newcomers to disc adventuring couldn't start in a better place.

T.Higgins

Product: Ultima IV
Price: £24.95
Requirements: Apple II with 64k
Supplier: Origin Systems/Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA
Tel: 0666 54326

examine everything in sight – some of this searching will be a complete waste of time and frustrating, but it does proof profitable in the long run.

A few command shortcuts are available. Some of the function keys and other combinations allow you to save, restore, quit, list you inventory, pause/resume,and so on. Sound effects are average only.

Gameplay apart, the actual adventure is quite enjoyable. There is plenty of variety in the puzzles and responses and the game has a robust sense of humour.

Having encountered about my sixth dead crewman, I was told "Here lies another heap of fried humanity. The attackers have proven to be very thorough thus far. There's something to be said for not being the hero type, you rationalise".

What it comes down to is that you either like or dislike this sort of adventure. Moving the main character around dozens of screens, particularly when the graphics and animation are fairly rudimentary is not my personal idea of entertainment – I want to get on with the puzzles.

However, there's no denying that a lot of people do like this type of adventure and if you are one of them then Space Quest is going to provide you with a good deal of fun.

And as if to prove how popular such adventures are, Space Quest II will be on its way very shortly.

Bob Chappell

Budget-price battles

ANOTHER title in MGA's budget series, Familiar Favourites I is licenced from Sierra On-Line. And this originally full-priced title of over £30 is now available at less than a third of the price.

In Aquatron you have been abandoned on an ocean-covered plant with only one base ship and mobile fighter to render assistance.

To stay alive you must evade or fight the enemy ships lurking in the air and water, capturing or destroying as many as possible before the enemy interceptors arrive.

Aquatron is a mixture of arcade air battles and video sea conflict – and well worth a look.

Product: Familiar Favourites I: Aquatron
Price: £9.99
Supplier: MGA Microsystems, 140 Tenterden High Street, Kent TN30 6HT.
Tel: 05806 4278

Too hot to handle?

Duncan Langford tests out Omnis 3 Plus – an application generator with a difference

IT's hard to know exactly where to begin in reviewing a program like Omnis 3 Plus. Although on the box it says "database manager", actually it's such a complex and powerful application that it happily slides in under half a dozen other headings. This complexity, perhaps the greatest strength of Omnis, is probably its greatest weakness, too.

Let's start right at the beginning, by looking briefly at what a database application is.

Computers are very good at dealing with large amounts of data, so, generally, existing manual systems which already handle data are straightforward to convert to computer use.

It's easiest to describe a "database" computer system by references to a manual one – for example, a card index of cookery recipes is a database; so would be a similar manual file containing account details of business customers (see Figure I).

Each card would have a heading – perhaps the customer's name, or the name of the recipe – followed by other details: An address, or ingredients, for example.

Most Macintosh database applications follow this single-file model. Naturally there is no physical index card, although usually an approximation of one is drawn on screen. Microsoft's File is still a very popular example of this program type.

Although it can be used as a single-file application, Omnis is actually a multi-file or relational database. This means that different single-files of information may be linked together, and in effect automatically integrated, through the use of a logical common data model. Information may thus be extracted which is a composite of two or more "card indexes", or single data files.

Imagine one card index (file A) consisting just of supplier names and addresses. We may want another index to use these details, perhaps to keep records of suppliers of particular items. Instead of entering all the information again, it is possible to 'flag' each entry in file B so that, when needed, details may be automatically looked up in file A.

This would clearly be a laborious process by hand, using real cards, but with a relational database and hard disc it is very fast and efficient. Omnis may have up to 12 of these data files open at one time, allowing for reports of considerable complexity.

The package is very well presented,

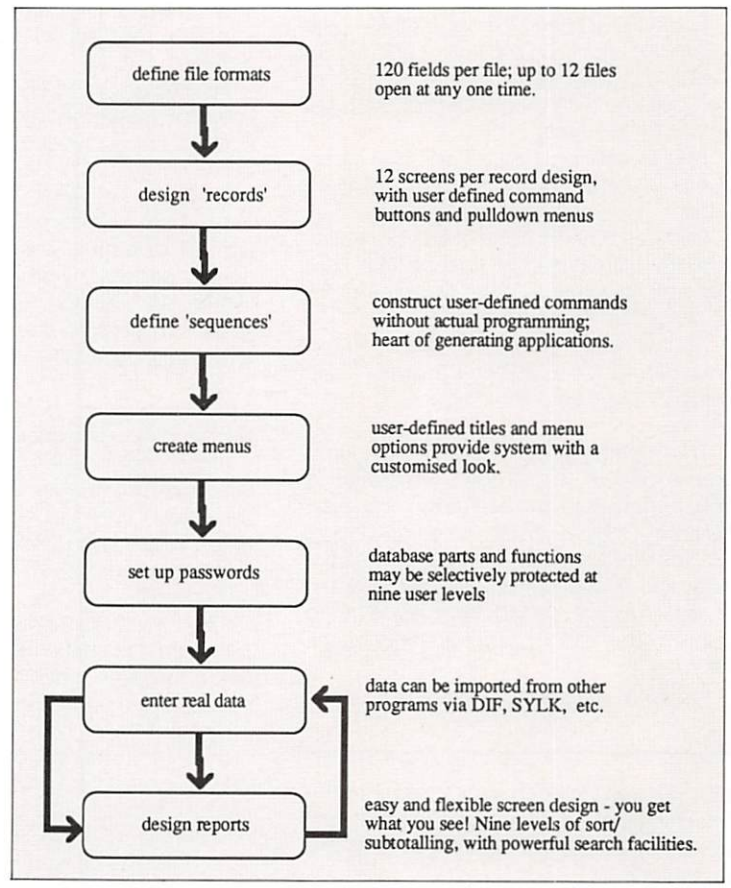


Figure II: Steps in building an Omnis Database

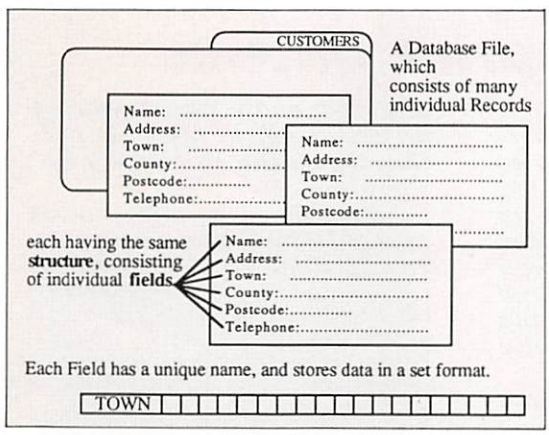


Figure I: Database file entry

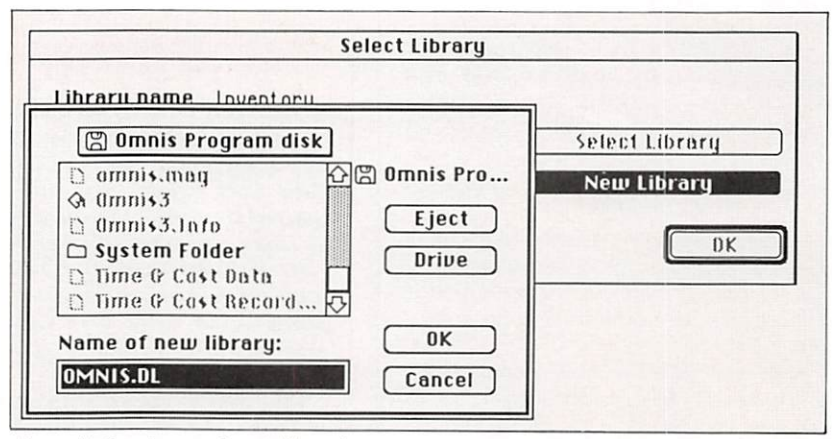


Figure III: Creating an Omnis 'library'

coming in an impressive black carrying case, complete with Velcro seal. Inside are three manuals, two large and spiral backed – the Tutorial Manual and the Reference manual – and a useful pocket sized Reference Guide. An individual padded disc carrying case contains four 400k discs – a System disc and back up, a Program disc, and a disc of examples.

It appears that Blyth Software may have dropped its copy protection, although when used for the first time Omnis does ask for the name of the registered user, which is then permanently recorded. However, this is one program where copy-protection is probably superfluous – no one is likely to get very far without documentation.

Application design is actually what the original Omnis is all about. Forget the Database Manager label on the box – this application is really a very effective programming language, having the potential to create a wide variety of turnkey applications, some of which could be straightforward database managers. Others may be invoicing systems, shipping schedules or personnel directories, inventory tracking packages – even a General Ledger.

Intended users

If this appears intimidating, reflect that the package is not intended for the casual user, but for business managers with cost effective applications very much in mind.

Macintosh people grow used to removing a disc from its packaging and immediately booting up an application. Indeed, I have seen more than one user of Microsoft File who has never opened the manual, relying solely upon File's built-in Help function, an asset not possessed by Omnis.

Omnis is actually not designed for this type of user, although they would be comfortable with the 'stage two' applications, those created by Omnis. In effect, Omnis users in practice are likely to fall into two distinct groups – those who design Omnis applications, and those who use them.

If this separation is kept in mind, the complexities of Omnis become more understandable, as does the lack of some of the bells and whistles we've come to expect in Mac programs – on line help, and variable styles and fonts, for example.

The Mac interface is well supported when creating an Omnis application – apart from file names and field lengths, all information can be given through use of the mouse. The structure of an Omnis file is illustrated in Figure II.

The first stage in creation is to choose an overall name for the database – Omnis calls them 'libraries' – and this is done through the window shown in Figure III. A default name of OMNIS.DL is provided.

File formats, which must be given names of seven characters or less, are then defined. Omnis prefers them to have an F as a prefix (it likes prefixes of E for entry layouts and R for reports, too).

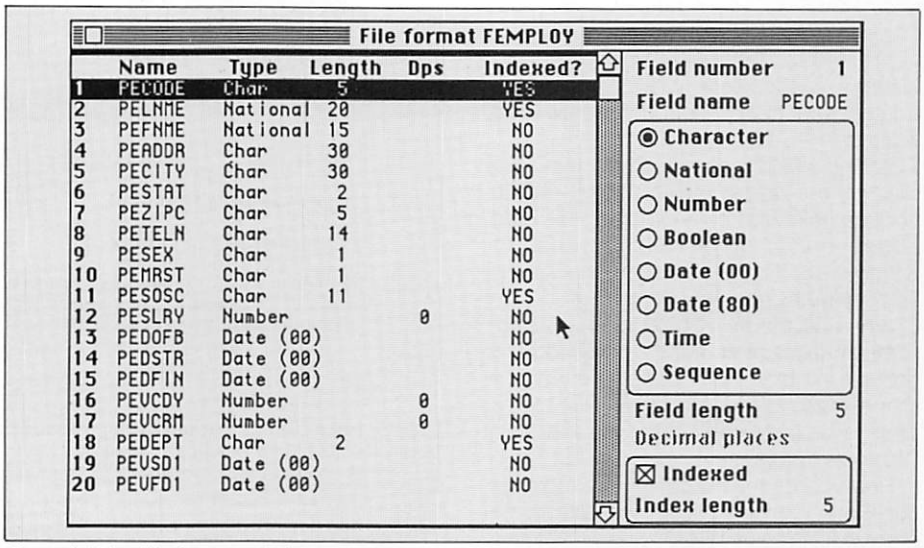


Figure IV: The File format window

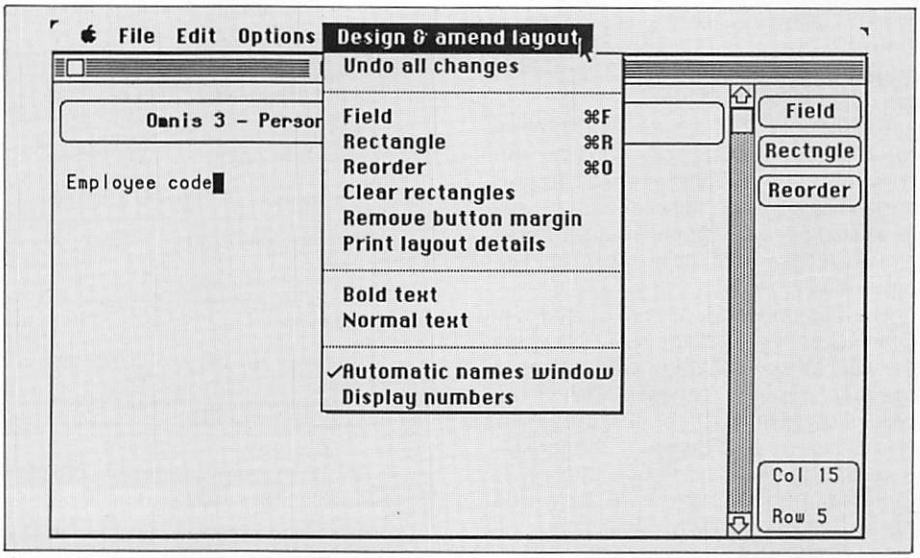


Figure V: Starting to enter the layout window

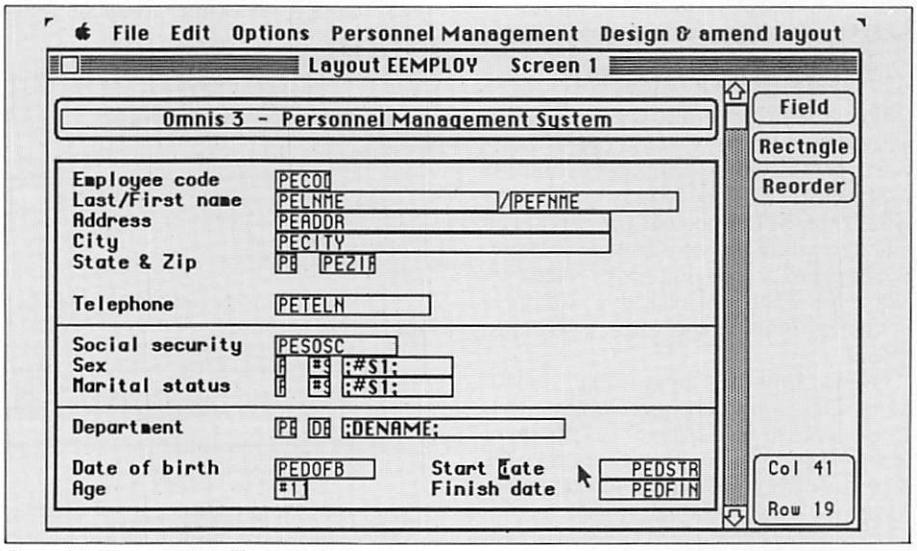


Figure VI: The completed layout window

The File Format window, shown in Figure IV, allows for the display and setting of all fields within a file. Twenty are displayed on screen, although scrolling allows a maximum of 120 to be entered.

Character and national fields may have a length of up to 79 characters. There are seven field types in all: Character, national, numeric, – to six decimal places, boolean, date, time and sequence. Up to 12 of the 120 fields may be indexed, for faster searching and retrieval.

When the formats have been chosen, the layout, or screen appearance of the file, is created with the logically named Layout window (see Figures V and VI). This ▷

◁ window is the place where records are created and edited, found, inserted and deleted.

Placing a field is done with the mouse: a click on the layout screen in the chosen position, followed by another on the Field button brings up a Field Description window (see Figure VII) where the various field attributes may be selected.

When all the fields have been entered, some enhancement of the field window is possible by drawing rectangles of various shape and thickness, but, overall, the style is likely to be fairly stark – this, one feels, is a "business" program.

Finally, once the file design is completed, the Options menu allows for data to be entered (see Figure VIII). Data may be typed in directly or imported in a variety of other formats, allowing for file conversion to Omnis without re-entering of data – I moved over a database from File without too much difficulty.

The strength of Omnis comes in its ability to present reports of considerable complexity – the search and sort facilities are particularly sophisticated, and are able to be tailored to select virtually any combination of records from within the entire database (see Figure IX).

The creation and development of an Omnis 3 turnkey package really lies within the field of the company programmer or computer systems manager. Such a user would be able to make full use of the impressive extras allowed by the application, which include the ability – through the Options menu – to create individual menus, each potentially containing up to nine commands (see Figure X).

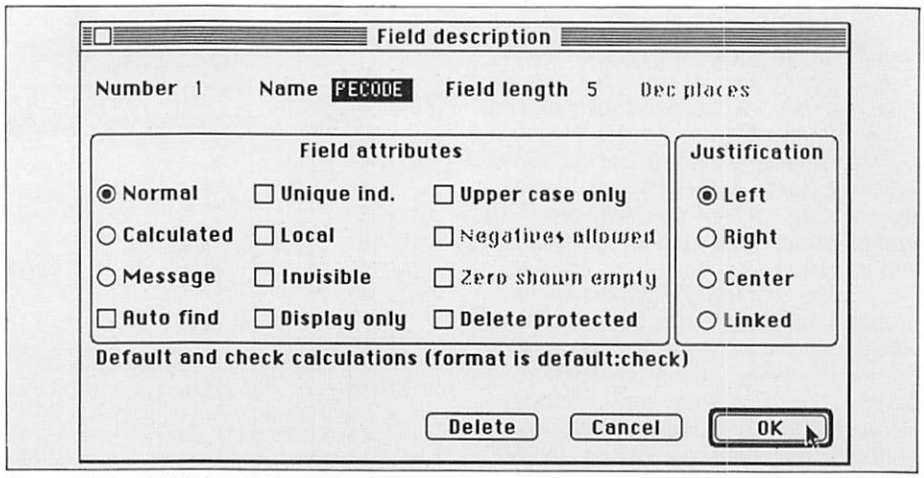


Figure VII: The Field description window

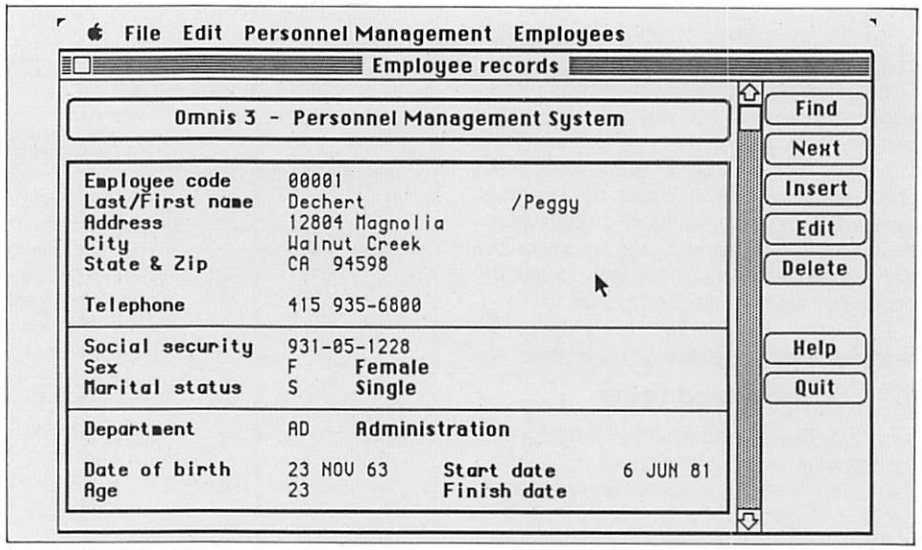


Figure VIII: Data entry

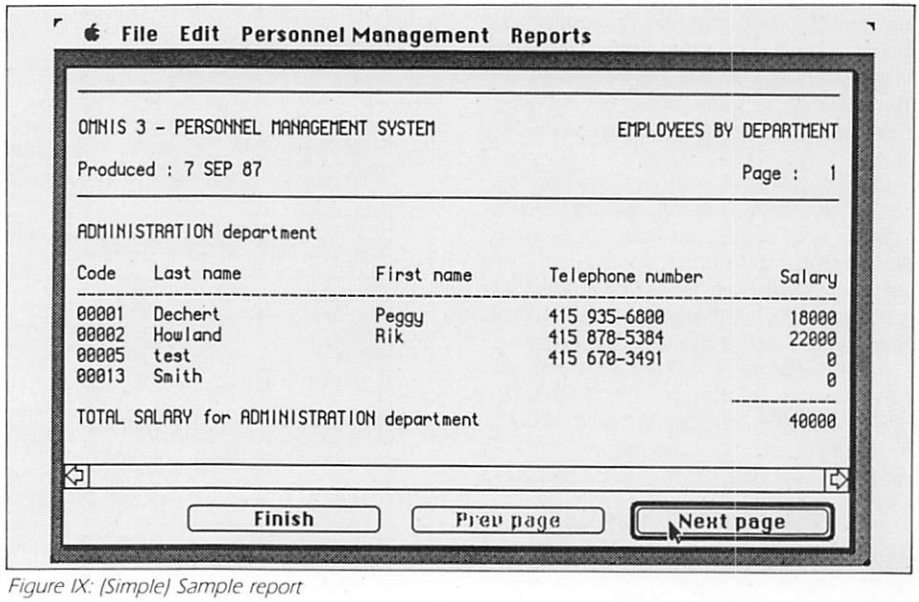


Figure IX: (Simple) Sample report

Password protection

Omnis 3 Plus may also be used on a networked system, several levels of password protection making it possible to selectively define user access. Potentially, a system may be designed for use on a single user floppy based system and progressively expanded to a hard disc based multi-user one. I felt that a potential user without a hard disc might experience difficulties, though.

Overall, Omnis 3 Plus is a very sophisticated application generator, which needs some time to understand to the point where useful systems may be developed. Although documentation is good, the complexity of the program is such that for an inexperienced user some additional help may be needed.

It was this point that I had in mind when at the beginning of the review I wrote that the greatest strength of Omnis was probably its greatest weakness – the application's complexity may well deny the use of Omnis to many who would find it of great use.

However, I understand that Blyth Software is in the process of developing an additional software package which may assist in this area; and various business packages developed with Omnis are already available.

Product: Omnis 3+ database management system
Price: £445
Suppler: Blyth Software, Mitford House, Benhall, Saxmundham, Suffolk IP17 1BR.
Requirements: 512k Macintosh with two drives; MacPlus and hard disc advised.

Figure X: Sample menu created by Omnis

Scanning the horizon

Mark O'Donovan takes a look at the DTP add-on for the Mac that's a must for serious users

HAVING worked for some months with most of the new scanners that have appeared on the market, I have come to the conclusion that what differentiates the good from the bad is not the hardware (the scanner), but the accompanying software.

It's the software that provides you with the options on settings and on how you want to scan an image. It defines the area to be scanned, the resolution and the brightness, and so on. Generally speaking, the more options available, the more refined the final image will be.

At present there is no real difference in the actual mechanics of any scanner that makes it significantly different from any other on the market, apart from the obvious one of whether it is a roller or flatbed model.

As desktop publishing has come a long way from the days of PageMaker 1.2 and MacPaint, which in their time were sophisticated packages that created a huge new market, so scanners have moved with the times, from the now prehistoric ThunderScan to today's generation.

Long gone are the days of being stuck with the limitation of 72 dots per inch (dpi): Now you can move on up to 300 dpi, utilising the full potential of the Apple LaserWriter's maximum resolution. Gone too are the problems of being limited to at most two types of file format when saving the image for transport into another package. Suddenly there is a range of file formats to choose from, all taking advantage of the LaserWriter's 300 dpi and supporting all the most popular DTP software.

Line art scanning – the scanning of black and white line drawings such as cartoons – has never been so good.

But problems still arise when you want to scan a half tone image – one that comprises not only black and white but also the grey levels in between. The computer still only recognises black and white, and has to create a block of black and white dots to produce the grey levels that half tones require. The more grey levels available, the better the image will be.

Most people involved in using DTP software agree that though line art is up to scratch, in comparison with the page makeup and illustrative packages and the quality they produce, half tones still have a way to go to catch up to this standard.

Storage poses its own problems. As scanning has become more and more sophisticated, the room needed to store the ▷

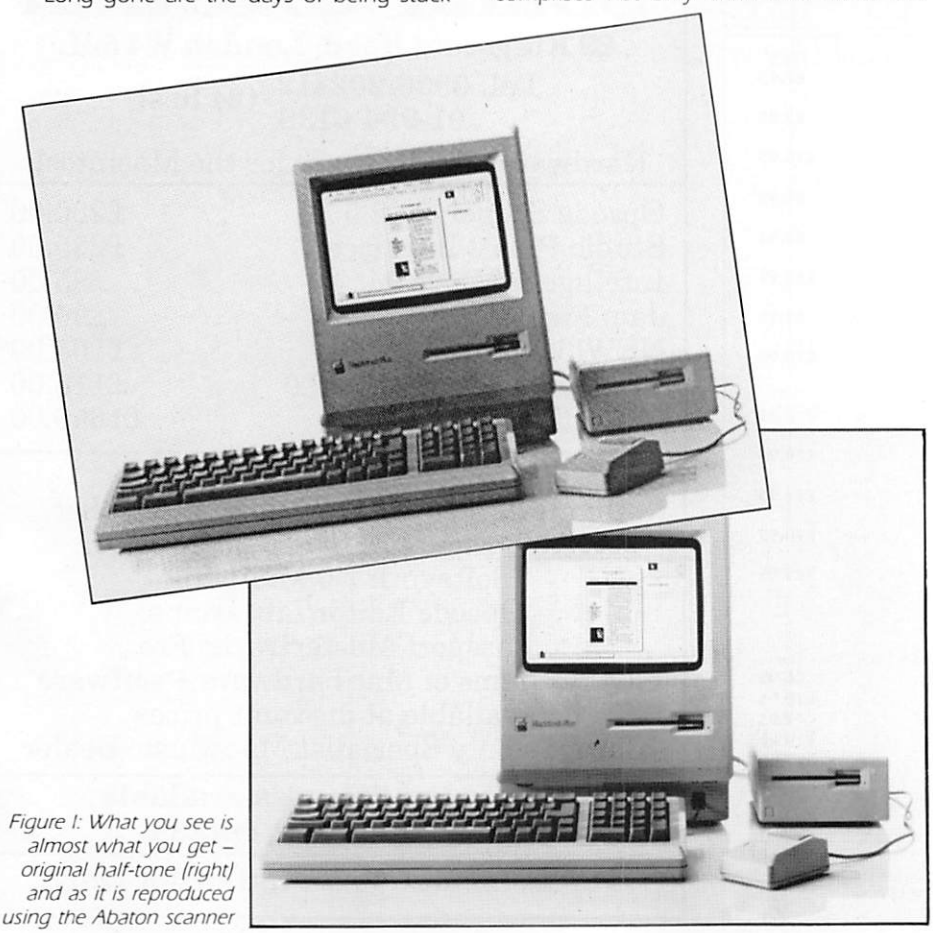


Figure 1: What you see is almost what you get – original half-tone (right) and as it is reproduced using the Abaton scanner

Abaton C-Scan300

The C-Scan is the only roller scanner looked at here – and it compares more than favourably with the flatbed models.

It's easily linked to the Macintosh via the serial port and is uncluttered by command buttons and flashing lights. Apart from the on/off button and the scanner, the only other things to cope with are the status lights.

After using the Datacopy 730, the choices offered by the Abaton software seem almost too indulgent. For example, the area to be scanned can be set in inches or centimetres, which can save considerable "translation" time.

It allows up to four windows of line art if the frame is set to half tone, and vice versa, and explicit and powerful tools are available for different grey levels, contrast and brightness.

Another ingenious function is that while you are setting the area to be scanned, the computer shows how much memory the scanned image will take up. There is also the option of scanning to memory or, if the area to be scanned is large, to disc.

Although there are only three zoom levels, the editing tools are a luxury, allowing specific areas of an image to be cut and copied, a paintbrush as well as a pencil, and continual scrolling.

The only letdown came when it was time to store the image. The file formats available are not very comprehensive and include none of the new file formats available on other scanner software.

But, that said, the software options open to the user are very powerful indeed.

Microtek MSF-300C

The Microtek has a slightly bigger footprint than most flatbed scanners, though it's still a workable size for a desk top. It's very easy to connect to the Macintosh (via the serial port) and powerful software gives you a great deal of flexibility when it comes to scanning an image.

The Versa scan software that runs the scanner allows you seven levels of scanning resolution, from 300 dpi down to 75 dpi, up to 65 grey levels and three different settings for contrast and brightness.

A help menu is provided and you have the option of having up to four windows open, with the scanning frame allowing different modes of scanning within each window.

The only problems I found were that there were few file formats to choose from, and the editing tools to change the processed image left a lot to be desired.

image has grown in proportion. Scan files can now quite easily take up more than 800k, especially if the image is saved in PostScript format, making it necessary for users to invest in a hard disc.

The choices facing the intending buyer – as with most software and hardware these days – are horrendous. Not only does he have to decide whether he can afford a scanner (which is nearly as much as another Macintosh) but also which type of scanner, roller or flatbed, is better suited to his needs.

A roller scanner does offer slightly better quality, but is limited in being able to scan only relatively thin paper, as the original image has to be fitted around the roller, whereas a flatbed model allows you to scan even large objects.

Then there is the supporting software to consider: Will it allow you to save in the format best suited for the package you're going to export it into, does it offer the standard of definition you need, will it...

To give you a flavour of what's available, I've included here outline performance details of three popular scanners. I've refrained from recommendation: The best advice I can give is to test thoroughly before you buy.

Datacopy 730

Another flatbed scanner, and one which connects directly to the Macintosh's SCSI port and takes full advantage of the fast data transfer this allows. A simple panel on the top of the scanner indicates the scanner's status and the contrast setting chosen.

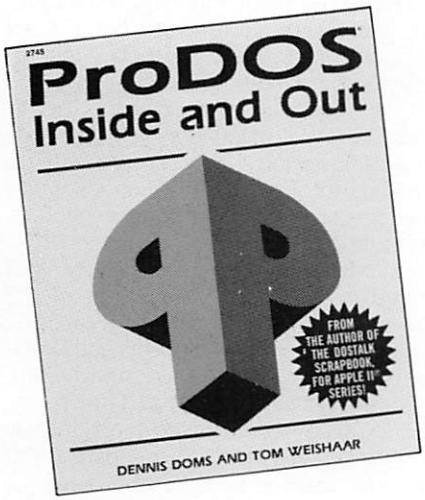
The Datacopy uses MacImage software, which could not be simpler. In fact, it is too simple. The options available are minimal, offering three contrast levels and a choice of four scanning resolutions, from 300 dpi to 150 dpi.

Only three choices of scanning are available: Mode 1 for line art, and the others for half tone images. Once an image is scanned you are able to view it at various levels, but the editing tools are very limited, only allowing a pencil at the fatbits level.

The only commendable aspect of the MacImage software is that the file format options give you nearly every format available. The exception is Encapsulated PostScript, which stores two files, one as a PostScript file for printing and the other as a PICT file for display. □

BookShelf

The Apple II – especially the IIgs – is still a popular choice with authors. Max Parrott turns the pages of some recent offerings



ProDOS Inside and Out
by Dennis Doms and Tom Weishaar

NEW books about Prodos are always welcome: This one is written around Prodos 1.1.1 and BASIC.SYSTEM, but as far as I can tell holds good for Prodos 8 as well.

Most books which set out to cover operating systems and computer languages start with a chapter or two which form a simplistic introduction to the subject, covering its history and command structure. This book is no exception but I've never seen one which is quite so well done. It's concise and critical, but very readable, and soon begins to give tips on how to really get the best out of the system.

In 35 pages or so the hierarchical structure of paths and filenames is covered together with saving, loading, and running of Basic and binary programs and the CAT and CATALOG commands and the likelihood of error messages.

The next 30 pages cover those commands which rightly belong to BASIC.SYSTEM rather than Prodos; self-contained program-fragments are given to demonstrate points about garbage collection, reading directory information into a program and error handling.

TEXT files are the subject of the next 30 pages: Sequential, random and EXEC files are all treated in depth. Everything you always wanted to know is gathered here, including ways of interrupting EXEC files for keyboard input and the full use of file parameters and pointers.

All of this is brought together in a Basic program which fully shows directory handling from within a program and the creation and maintenance of data files.

The remainder of the book (90 pages) covers the use of BASIC.SYSTEM and the Machine Language Interface with machine language, offering ideas (and examples) on adding new Prodos commands and drivers (specifically for a clock driver but written in a general way) and interrupt handlers.

Finally there are seven appendices of command tables, hexadecimal arithmetic, Dos/Prodos conversions and differences, the insides of Apple IIs, bibliography, and an INPUT anything routine.

The authors have much experience in programming for Dos and Prodos and have written extensively about both before. This book carries on in the fine tradition of Softalk, The DOSTalk Scrapbook and more recently Open-Apple and is well worth buying if you want to program your Apple II in Basic under Prodos – even if you already know how.

ProDOS Inside and Out by Dennis Doms and Tom Weishaar, published by Tab Books, Blue Ridge Summit, PA 17214, ISBN 0-8306-2745-6 (paperback) at £15.30.

65816/65802 Assembly Language Programming
by Michael Fischer

If you really want to get the best out of the IIgs then it makes sense to be able to program it at the machine level – although Apple's C is, by the sound of it, very good. Hopefully the other high-level languages which follow will also allow a good level of access to the IIgs tools.

Until such happy days we have only the rom-based Applesoft Basic which is woefully inadequate for the task. The books by Bond and Fischer, mentioned above, both show ways of writing routines in code which could, just about, be used from Applesoft, but eventually we will need to extend them.

As each tool uses native, 16 bit 65816 code we will have to understand it - we cannot stay in the 8 bit 6502 emulation mode all the time.

Towards this end Michael Fischer has also written this book on the 65816 although it is not IIgs orientated. In fact the book was written around an Apple16 65816 co-processor board and the Orca/M Assembler but reference is made to other assemblers, most notably the Merlin Pro from Roger Wagner Publishing and the S-C Macro Assembler from S-C Software Corporation.

The Apple Programmer's Workshop Assembler and the IIgs mini-assembler are not mentioned. That aside, the book is still relevant to the intending IIgs programmer; it is a big mistake to assume that a knowledge of 6502 code will get you through a piece of 65816 code, they come out rather different.

Although the programming examples given are all printouts of assembled output, I think that all are suitable for entry via the mini-assembler. Serious programmers will have to buy a suitable assembler but most of us will probably get by with the mini.

The book begins with a short introduction to computers and assemblers then moves on to the 658xx architectures. The following chapters cover the assembly language mnemonics, general purpose routines, arithmetic, looping structures, sorting, position-independent code and interrupts (these last two are particularly important on the IIgs).

The book ends with tips on programming and debugging and appendices covering the 65816/65802 specifications and their support chips, the 6522 VIA, the 6521 PIA, the 6551 ACIA, the 6532 I/O timer, and the 6590 and 6529, all in their CMOS versions, together with comparative charts of machine instructions and addressing modes.

There is little reference to the 6502 (other than mentioning emulation mode and describing some instructions) but use is made of 8 bit modes where appropriate. Because of this I believe the book to be of use to the IIgs owner who is new to assembly language: They will not need to go away, learn the 6502 and then return to this to add the extra 16 bit stuff – it's very much a self-contained book and makes a good text book and reference on the 65816.

By the way, in case you've been wondering, the 65802 is a 16 bit chip, identical to the 65816 except that it has only a 16 bit addressing capability (allowing 64k to be addressed directly) against the 24 bit addressing of the IIgs' 65816 (allowing 16MB to be addressed directly, although the IIgs is configured only for 8Mb to be on board).

65816/65802 Assembly Language Programming by Michael Fischer, published by Osborne McGraw-Hill, ISBN 0-07-881235-6 at £19.95.

▷

Inside the Apple IIgs
by Gary Bond

◁ BESIDES the Apple Technical Introduction reviewed above and the technical manuals which have not yet appeared in print there are at least two other books which serve as technical references.

Inside the Apple IIgs is an excellent introduction to the gs system architecture, processor, memory organisation, I/O capabilities, system monitor and toolbox facilities. Its 450 or so pages give a superb insight into the way the machine works: the first three chapters describe the organisation of the machine memory (with reference to the IIe), and then the rest of the book uses description and user-experimentation with the firmware to make its points.

Much of this is initiated in chapter four, which starts by describing the monitor commands and how to get the best out of them (there is much more to the monitor than there is with the IIe/c). The remainder of the book describes the rom entry points which remain from the II+ days and the mini-assembler, vectors, soft-switches, slots and ports, and sound, graphics and miscellaneous tools.

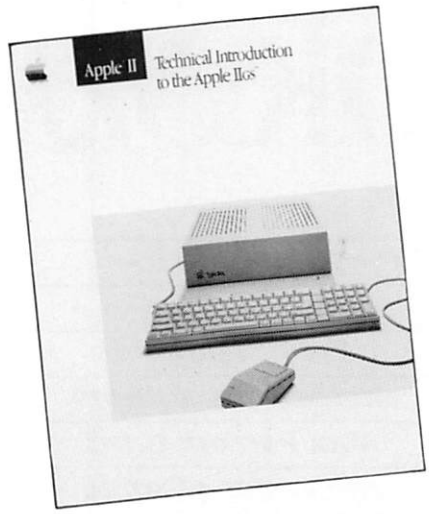
Numerous programming examples are given in every chapter and although nearly all are in 65816 assembly language they are all suitable for use with the mini-assembler. An idea I like is the use of many examples of system monitor commands to illustrate certain points as well as the program examples.

I did detect one mistake, a program written to work under Dos 3.3 which uses Dos-specific memory locations to load and save data in banks other than $00 is also claimed to work under Prodos - it was almost as if the offending statement was added as an afterthought without too much checking.

One criticism I have of the book is the way it suddenly switches from one style of register/byte description to another. In the first part of the book 8 bits are described as numbered from 1 to 8, then in the second they are numbered from 0 to 7. This means you have to be very careful when making backward references Luckily, each description is accompanied by a diagram which clarifies the point. I hope that this unfortunate lack of coordination will be remedied should the book run to a second edition, which I am sure will happen.

The book is otherwise excellent at teaching the reader about the IIgs' insides and really only has one fault - it leaves you hungry for more. You begin to realise that there is so much more to find out about the machine - those technical reference manuals will be really necessary.

Inside the Apple IIgs by Gary Bond, published by Sybex, ISBN 0-89588-365-1 at £19.95.



Technical Introduction to the Apple IIgs
by Apple Computer

THE IIgs is a complex machine with its fast and slow ram, shadow ram, rom space, memory manager, toolbox and two distinct modes of working – both as a 16 bit machine and as an 8 bit Apple II.

With it's later machines Apple have dispensed with the old style, technical reference manual of the Apple II plus days, opting instead for a series of books, written by Apple but published by Addison-Wesley.

Although this means that you have to fork out more money I think that given the complexity of the subject the move is welcome.

The technical manuals for the IIgs stretch to 13 in total of which this is the first. Apple have been somewhat tardy in producing them, indeed we have only seen this one in finished form, although we do hope to review the rest as soon as they appear.

Judging from those part proofs which we have seen, this introductory text is by far the least technical of the set, but it is still necessary to anyone who hopes to program and make best use of the IIgs.

One of its aims is to point the user to those technical manuals which he needs for a particular job. It will cost a fair bit to go and buy the lot in one go, so it's worth spending time and money on the introduction to the set.

Its other aim, which is equally well served here, is to cover features of the hardware and architecture, firmware, I/O, toolbox, program environments and development environments in an overall, introductory but not simplistic fashion.

The user who intends to program may well be tempted to bypass this manual and head for the one he thinks he needs - I would advise against it. The machine is complex and any one aspect of programming will interact with other areas. Unless the programmer is aware of what's available and possible he is never going to make the best use of the machine.

In fact it would be very easy to be overwhelmed by the vast amount of detail which is going to come our way without some form of introductory text like this.

Technical Introduction to the Apple IIgs by Apple Computer, published by Addison-Wesley, ISNB 0-201-17742-0 at £9.60.

Apple IIgs Technical Reference
by Michael Fischer

THIS 700 page tome is a truly remarkable reference book for the IIgs. It is not a light read, but a very comprehensive fact book. Just one example: Inside the Apple IIgs, devotes over 40 pages to describing the soft switches (like the IIe's but much extended) and how to use them, whereas Fischer's book condenses the same information into 8 pages. It's all there but you have to be aware of how to use the information.

The book has quite a few programming examples, again like Bond's book in 65816 assembly language, but unlike that book they are usually presented with macros corresponding to the Apple Programmer's Workshop environment and they conform with the assembler from that Workshop.

You should be aware that the various tools and tool managers use the stack in a defined way to receive and to pass information. The assembler comes with macros for each tool and likewise the C compiler includes files with its libraries. After compiling, modules from each language can be linked together, so it makes sense from the programming point of view to refer, as in this book, to the macros as more or less black boxes.

Because of the great volume of information presented here and because there is little in the way of introductory text to each area covered, I would not recommend this book for the beginner.

On the other hand, if you know a lot about programming the IIe/c or the Macintosh (concepts are similar even if the language is not) and are reasonably proficient at machine code you should do well with this book. It is destined to become (along with the 'official' technical reference manuals) the bible.

Quite how much more information there is in the official reference manuals than in Fischer's and Bond's books is difficult to know without seeing and using them. I have noticed however, that little is said about Prodos 8 and even less about Prodos 16 in these three books, so clearly the reference manuals for the disc operating systems is going to definitely be a necessity.

Apple IIgs Technical Reference by Michael Fischer, published by Osborne McGraw-Hill, ISBN 0-07-881009-4 at £17.95. □

Apples...

AS an Apple II user since 1981 and a Windfall/Apple User *subscriber from the second issue, may I say how thoroughly I agree with Sally Bowen (Feedback, August '87) that II Series users are now poorly served by the magazine.*

And, contrary to your reply to her, no it is not "worth seeing", at £1.50 a throw "what is happening in other areas" whether it be Mac, IBM, Beeb or any other equally incompatible computer.

At the II user end, some 50 per cent of any current issue is useless material (a glance at copies of Windfall *or early issues of* Apple User *sharply emphasises this).*

I think it is time to realise that nowadays the very term "Apple user" is practically meaningless and to consider whether the population of Macs is now sufficiently large to justify a magazine of its own – or if that is not yet commercially feasible, at least separate, page-replacement versions of Apple User *to serve the quite distinct user interests.* – **R. Brown, Wendover.**

... and Macs...

AFTER much soul searching, I've finally switched loyalties and acquired a Mac Plus in addition to my ageing and endlessly added-to II+.

I still use the II+ – it's been too good a friend for too long to desert completely – but I do appreciate the Mac's memory and ease of use.

I thought that Apple User *was giving me the best of both worlds by covering both families, but the last issue seemed to have a much-depleted Mac content.*

Is this trend going to be reversed, or have I got to dip into my pocket for yet another magazine? – **S. Gorton, Stoke-on-Trent.**

...and Apples

AS a reader of Apple User, *and a user of an Apple II+, I am concerned about the magazine's swing to Macs. I think it is a wonderful machine, but it dominates most of the magazine.*

I preferred the days when most of the articles on the Macs had a grey background, so you could tell which ones were about Macs instantly.

I suppose you get a lot of letters from disgruntled II owners, so why don't you have another reader survey?

I would also like to see a few paragraphs at the beginning of each issue used for editorial comments, such as why the Apple User *logo was changed, why the change to different paper, and most of all, why the price rises?*

I also miss "New Products" – this feature used to be packed with new goodies, but now it has faded into obscurity. – **R. Nunn, Gosport.**

● Who was it who said something about pleasing some of the people some of the time?

Most of the changes we make in the mag reflect readers' opinions, preferences and requests – we keep an open file and try to implement changes gradually rather than impose radical new approaches at random.

The inclusion of Mac material is a case in point, and you'll find that Mac material is generally included in addition to the regular Apple II features.

As you'll be aware, a reader survey is currently underway and the results will certainly affect the future shape and content of the magazine.

File transfer

I REFER to Brian Sayers' letter on file transfers (Feedback, September 1987).

There is another way to transfer files between a Commodore 64 and an Apple II, assuming that both can be connected to a tape recorder, namely the Basicode 2+ Kit originated by Nederlandse Omroep Stichting, Hilversum, Holland, marketed in the UK for the BBC by Broadcasting Support Services, 2 Cater Road, Bristol BS13 7TW.

The kit consists of an instruction book and cassette tape carrying programs for the Apple and Commodore. The kit is cheap, costing only about £5 when I bought it and no other software or hardware is needed.

Once the programs have been loaded into the respective computers, they are able to write to tape in a common format that both computers can read.

Although designed for program interchange, there appears to be no reason why Basicode should not be suitable for any type of file. – **I. Campbell, Widnes.**

Print Shop

I AM using Print Shop for various purposes and was interested to read Pat Cookson's article in the September issue of Apple User.

It referred to "Henry Kong's handy program" in the September 1986 issue, which I would like to see. However, it appears that back issues that old are not available. Can you help?

I have PLUS and Print Shop Companion, but I would like to hear about any other utilities for Print Shop, particularly any that would allow control over the size of the item to be printed so that I would not be limited to the four standard uses – Letterheads, Signs, Greeting Cards and Banners. – **T. Milling, Pontypool.**

● An update to Henry Kong's program appeared from Den James in the April issue of this year.

SuperPilot

I AM the proud owner of an Apple IIc with external disc drive and ImageWriter. I am also a teacher and as such I am interested, ▷

◁ *in conjunction with schools, in writing lesson programs using the SuperPilot package.*

I have found it very powerful and easy to use, especially with regard to graphics and sound – something beyond the reach of the inexperienced programmer in Basic.

I am surprised that Apple User *has never dedicated a feature to SuperPilot (at least, not since I have been receiving it) when education is an area that Apple excels.*

What I would like to learn especially is how to send text and graphics to the printer. The package assumes you own the Silent-Type printer and text printed by the ImageWriter fills only half the paper width. Can this be remedied?

I would be pleased to hear from other teachers in Britain or elsewhere, informing me of their experiences in lesson-writing, as it seems that here in Malta I am just a pioneer, encouraged – thankfully – by the local Apple dealer. – **Mrs C. Gauci, Joyeuse Ville, Tower Promenade, Santa Lucia, Malta.**

● We have covered SuperPilot in the past, but it has been neglected of late. However, starting next month is a series intended to provide ready-made templates in SuperPilot for educational applications.

As to printing, you are not limited to 40 character output on the ImageWriter, although SuperPilot defaults to that: Delving into the printer manual will pay dividends.

Dumping graphics is seldom satisfactory, but screen text can be printed by including a **P** command within your program. When the program is run, all text – and input – will be printed as they appear on-screen.

Double-edged

I FOUND your article "Apple and the Africans" (Apple User, *July 1987) fascinating reading. The "alternative" newspapers produced on Macs in South Africa certainly made the government sit up and take notice – perhaps too much notice for comfort.*

The story was made all the more interesting in the light of the DTP ad on the back page of the same issue, showing an American newspaper with "Petition for Divestment" as one headline.

Your article showed up, once again, how disinvestment is a double-edged sword. It is still possible to get Macs here: If you can afford to go and fetch them. We poorer computer users, both pale and pigmented, meanwhile struggle along on Hong Kong "IBM" machines.

The Apple bosses in the US no doubt go to sleep at night with what they believe to be clear consciences, but what they have done, in actual fact, is to wash their hands of the whole complicated business of reconciliation in South Africa.

In doing so, they have thrown away any chances they might have had to bring about some changes for the better in our unfair society. – **M.J. Silberbauer, South Africa.**

Apple III drives

I WOULD appreciate any information you could give me about the Vlasak ProTect 8in disc drive for the Apple III.

The drive itself is a BASF 6104, and the disc controller card an SVA 9-007-001, serial number 2106. Unfortunately, I don't have a disc with the appropriate driver file for inclusion in SOS.DRIVER. Can you advise the relevant parameters and method for creating a driver from scratch?

Vlasak Computer Systems is now defunct, and although other dealers (including Apple UK) know of the drive, most of them simply say "Buy a ProFile" – I suspect as a means of disguising their ignorance!

Please don't give me the same advice – I'd like to get the ProTect up and running, and I'm sure that I can do so given the necessary information. – **M.R. Pullen, Dunstable.**

● We're afraid we have no knowledge of the Vlasak ProTect 8, but maybe someone out there has – if so, write in and we'll pass on the details.

Shareware

IN Apple User *you recently ran several articles on shareware and honorware.*

As we are the appointed distributors for Apple in Oman, we are interested in making as much software available for our customers as possible.

We would therefore request you to advise us how we could obtain copies of such software so that we could offer the same to our customers and hopefully convince them to send money to the developers so that they in turn will be encouraged to produce more and better programs. – **Comcent International, Muscat.**

● You've hit on the one major problem with shareware and honorware – you need to know someone who has a copy of the program you want, or an address to write to. We'll try to give as many addresses as possible in future issues.

Lifelines

WE hope the following will help readers with particular problems recently aired in Feedback.

With regard to M.G.Hallmeys' and G.C.Balmans' request for information on stocks and shares portfolio analysis and plotting, we can recommend Wall Street Plotter (£148.35) by Dickens Data, and Personal Investor (£34.45) and Investment Analysis (£34.45) by Microspare.

Two programs mentioned by Denis Doms, Open Apple, Kansas City are also available – The Plus (£27.60) from Big Red Apple Club and Universal File Conversion (£36.80) from Quality Software. All the above programs are available from the address below.

Finally, Brian Sayers, struggling to transfer Apple/Commodore files, could contact Laurie Faulkner (053-750-305) who converts Commodore 64 files to IBM-PC format, and Roger Larcombe (0233-28353) who converts IBM-PC files to Apple II format. – **MGA Microsystems, 140 High Street, Tenterden, Kent TN30 6HT.**

Jamming

EXACTLY, D.C.Sutton of Warrington. I might have agreed with Max Parrott if indeed the tractors did *push the paper through, but with mine, D.C.Sutton's and a few hundred others perhaps, the paper release lever fails to release the paper sufficiently to prevent ordinary quality paper from folding and jamming behind the platen.*

Address-label rolls go through quite well, but they are on much stiffer backing. Maybe Mr.Parrott has rather posh fanfold paper, or he'd have taken the criticism more seriously.

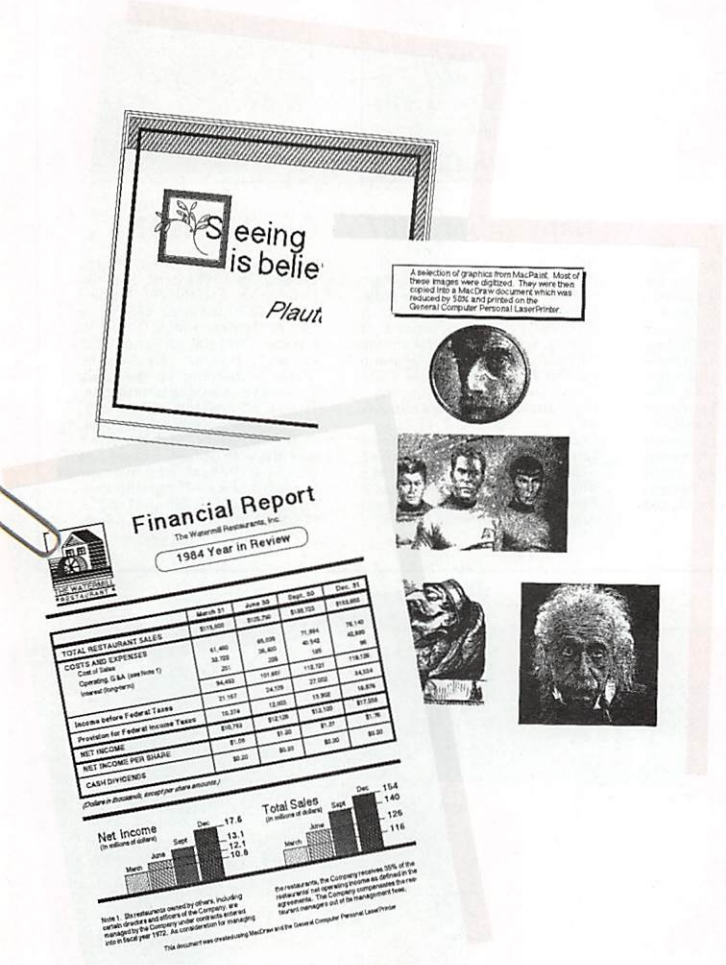
Please note page 7 (Oct.'87) "The ImageWriter LQ has been produced in response to demands? *. . . for a high quality printer . . ."*

Mr.Parrott, I think you may be among the minority, because that phrase usually means that the manufacturer got it wrong and has *to correct it, ostensibly by introducing a "super" version of the old one, or lose the business.* – **P.C. Arnold, Alderney**

● I'm fascinated. I've used an ImageWriter 1 for three years and an ImageWriter 2 for 6 months and neither has ever jammed.

An Epson RX80, however, does because the paper, which is cheap stuff, begins to lose its hole alignment – **Max Parrott.** □

A heaven sent laser with a down to earth price



At last – an affordable full-featured Laser printer for the Macintosh.

The PERSONAL LASER PRINTER from General Computer fills the gap between Apple's ImageWriter and LaserWriter printers.

Only slightly larger than the ImageWriter and offering similar printing quality to the LaserWriter, the PLP is well suited for all the documents you create in the course of your work . . . text, spreadsheets, hi-res graphics, presentations, DTP documents.

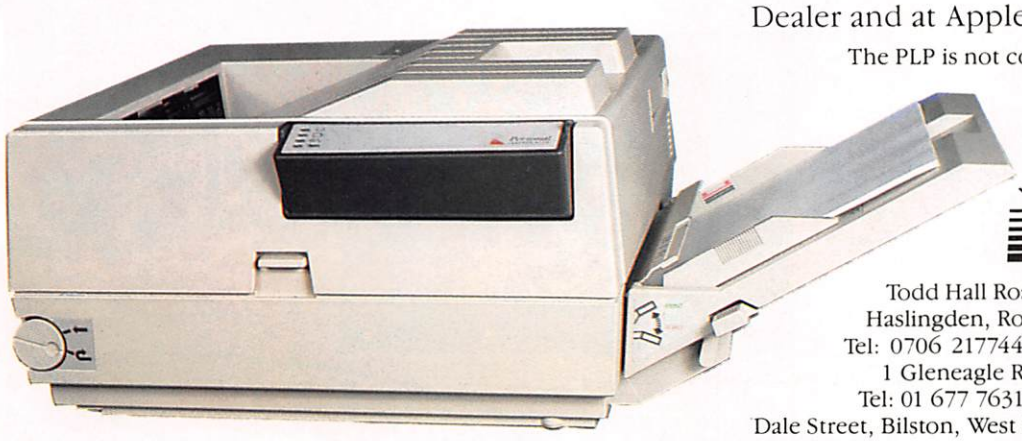
The PLP prints scanned images, hi-res graphics and text at an impressive 300 dots per inch near type-set quality. It comes with all the fonts available on the Apple LaserWriter, plus Bitstream's version of Palatino and Helvetica Narrow.

Three powerful printing modes that are presented by the Macintosh print manager are included in the PLP: preview, draft and high quality. It is Quick Draw compatible and prints at a speed of up to six pages per minute.

At a retail price of around half that of the AppleLaser Writer, the General Computer Personal Laser Printer is a must for your Mac.

The PLP is available from your Apple Dealer and at Apple Centres.

The PLP is not compatible with PostScript.



P P MICRO DISTRIBUTORS PLC

GENERAL COMPUTER

Todd Hall Road, Carrs Industrial Estate,
Haslingden, Rossendale, Lancs. BB4 5HU.
Tel: 0706 217744 Telex: 635740 PETPAM G.
1 Gleneagle Road, London SW16 6AY.
Tel: 01 677 7631 Telex: 919220 PPMICR G.
Dale Street, Bilston, West Midlands WV14 7JY. Tel: 0902 43913

P & P | MICRO | DISTRIBUTORS | PLC

BACK ISSUES

Catch up on articles you may have missed. Back issues from January 1987 are available at £1.75.

June 1987

Reviews: ObjectLogo, IIgs microprocessor, Microsoft's Works, the WIMP environment – Fun & Games; Bureaucracy, Jewels of Darkness, Autoduel – Programming; Pascal File Control System, customising AppleWorks, CP/M disc functions – Utilities; Debugging on-screen listings, Working with Dos sectors, Radio teletype receiver, Machine code tracer – Building a Mac software library, Designing a coding system, Mac Shareware, First impressions of the Mac SE – PLUS news and Feedback.

July 1987

Reviews: Adobe Illustrator, LaserWriter, VIP Professional, Microsoft's Word and the Beagle Bros' Prodos compiler – Fun & Games: Dark Castle, Moebius, Silicon Dreams and Guild of Thieves – Programming: Pascal Tutorial, CP/M BDOS function calls, Shape Chaser (a shape table utility), Screen Editor for Basic, Dos Info command utility – Honourware, Biorhythms from Spreadsheets, Mac problems solved, Opening up the Mac, Desktop publishing in South Africa, News and Feedback.

August 1987

Reviews: GraphicWriter, Music Studio, Visualiser, Quark XPress, Guide – Fun & Games: Movie Monster, Ogre, Electric Crayon – Programming: Pascal Tutorial, CP/M word counting utility, label-making program – 65C816 update, the Infocom interview, customising the Mac's control panel, Stemko, an Apple-controlled environment, the case for honorware, expert hints for desktop publishing beginners, Problem Page looks at the Finder and copy protection – PLUS all the latest Apple news and your letters.

September 1987

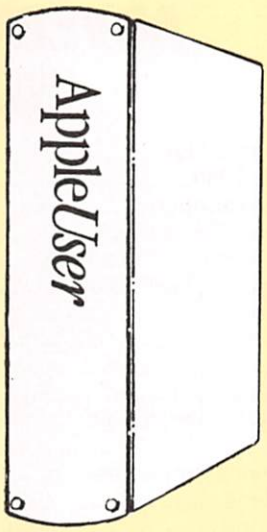
Reviews: Notes 'n' Files, Qisc hard drive, Sidekick, Plus Ram memory expansion cards, Boosting AppleWorks, – Fun & Games: Printshop, Shard of Spring, Battle Cruiser, Warship, Airheart, Stationfall – Opening up the Mac, True Faith, CAD, First look at comms, Running a dtp bureau, Honorware, Apples and real people – Utilities: Pascal menu layouts, shape tables, AppleWorks database design – Programming: CP/M's BIOS, Bugs in Prodos, Pascal Tutorial – PLUS all the latest Apple news and your letters

October 1987

Reviews: WordPerfect, PaintWorks, GS CP/M card, Prolink, Infomerge, Labels-234, Appleworks Companions, Slalom – Fun & Games: Kings Quest III, Fokker Triplane, Aliens, The Lurking Horror, Certificate Maker – Opening up the Mac, The man behind the biomorphs, Future of desktop publishing, DTP show, AppleWorks add-ons, Creative tools for creative people, Problem Page – Utilities: Pascal bar menus, hi-res graphics – Programming: Pascal tutorial, Snail Trail – PLUS all the latest Apple news.

TO ORDER PLEASE USE THE FORM ON PAGE 73

Apple User binder



Your Apple User is the ideal source of reference for every user of Apple computers. Keep your magazines tidy and in tip-top condition by using our top quality binder.

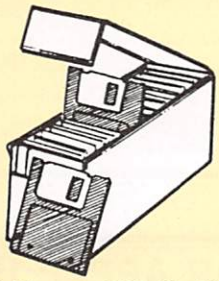
The *Apple User* binder holds 12 issues. Each binder is embossed with the *Apple User* Logo.

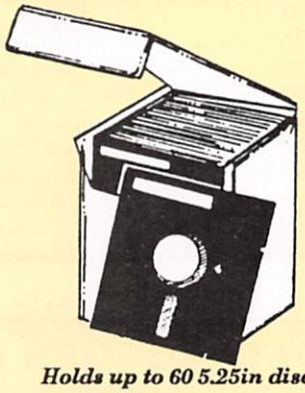
Only £4.95

See order form for prices outside the U.K.

FREE Secure storage for your discs (WORTH £4.95)

...when you take out a subscription

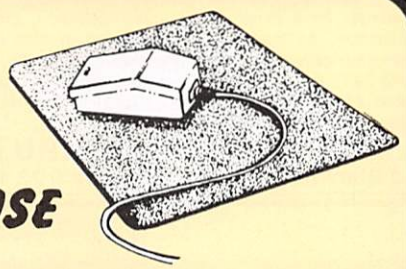




Holds up to 50 3.5in discs ***Holds up to 60 5.25in discs***

This is the ideal storage medium for your discs – a luxury padded pvc container, strongly made to protect your delicate programs from harm.

FREE MAT FOR YOUR MOUSE



(WORTH £4.95)

...when you take out a subscription to Apple User

Our top-quality Mouse Mat with its specially-Designed perfect-grip surface, provides the ideal desktop enviroment for your Mouse.

- ✧ Ensures much smoother movement
- ✧ Gives super positive control!
- ✧ Protects highly polished tabletops

Your Mouse Mat comes FREE if you subscribe using this form. Non-subscribers can obtain one by sending £4.95

AppleUser

ORDER FORM

Valid to November 30, 1987

Offers subject to availability
All prices include postage, packing and VAT

All overseas items despatched by air mail

£

New subscriptions

UK £18	*1001*	
Europe & Eire £23	*1004*	
Overseas surface £25	*1000*	
Overseas Air mail £38	*1005*	

Commence with _____ issue

Subscription renewals

UK £18	*1002*	
Europe & Eire £23	*1006*	
Overseas surface £25	*1003*	
Overseas Air mail £38	*1007*	

* Free with subscription – tick ONE box only:
Mousemat *1034* ☐ Disc Box 5.25" *1036* ☐ Disc Box 3.5" *1038* ☐

Disc Storage Box

5.25"	£4.95	*1037*	
3.5"	£4.95	*1039*	

Mouse Mat

£4.95 *1035* ☐

Silicon Dreams and Jewels of Darkness

	With Subs*	Without Subs				
Apple IIe						
Silicon Dreams	£12.95	£14.95	*1014*	☐	*1015*	☐
Jewels of Darkness	£12.95	£14.95	*1016*	☐	*1017*	☐
Both	£23.90	£27.90	*1018*	☐	*1019*	☐
Macintosh						
Silicon Dreams	£12.95	£14.95	*1020*	☐	*1021*	☐
Jewels of Darkness	£12.95	£14.95	*1022*	☐	*1023*	☐
Both	£23.90	£27.90	*1024*	☐	*1025*	☐

Add £3 for Europe (inc Eire)/£5 for overseas
(If ordering both add £6 for Europe (inc Eire)/£10 for Overseas

Starglider

	With Subs*	Without Subs				
Apple IIe	£9.95	£14.95	*1008*	☐	*1009*	☐

Brian Clough's Football Fortunes

	With Subs*	Without Subs				
Apple IIe	£14.95	£19.95	*1040*	☐	*1041*	☐

Apple User Games Discs

£5.95 UK £6.95 Europe (Inc Eire)/Overseas

Apple IIe No.1	*1083*	
Apple IIe No.2	*1084*	

Apple User back Issues

£1.75 UK,
£2.25 Europe,
£2.75 Overseas Air mail

JAN 1987	*1209*	
FEB 1987	*1210*	
MAR 1987	*1211*	
APR 1987	*1212*	
MAY 1987	*1213*	
JUNE 1987	*1214*	
JULY 1987	*1215*	
AUG 1987	*1216*	
SEPT 1987	*1217*	
OCT 1987	*1218*	

Binder

£4.95 UK £7.95 Europe (Inc Eire) £11.95 Overseas *1067* ☐

**Only if accompanied by a subscription order or renewal*

Add £2 for Europe (incl. Eire), £5 for Overseas to all prices unless otherwise indicated

Payment: please indicate method (✓) **TOTAL**

☐ Access/Mastercard/Eurocard/Barclaycard/Visa

No. ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

☐ Cheque/Eurocheque made payable to Database Publications Ltd.

Exp. date ☐☐☐☐

Name _____ Signed _____

Address _____

_____

_____ Tel: _____

Send to: *Apple User*, FREEPOST, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.
(No stamp needed if posted in UK) *Please allow 28 days for delivery*

Order at any time of the day or night

Telephone Orders:	*Orders by Prestel:*	*MicroLink/Telecom Gold*
061-429 7931	**Key *89, then 614568383**	**72:MAG001**

Don't forget to give your name, address and credit card number

ENQUIRIES ONLY: 061-480 0171 9am-5pm

AU11

ADVERTISERS' INDEX

Bidmuthin Technologies Ltd.

are pleased to announce their appointment as

Authorised Apple Dealers

and

Level 1 Service Centre

for

Apple II, Macintosh, Macintosh II
ImageWriter & LaserWriter

With a (slightly) new Address:

Bidmuthin Technologies Ltd.
Brent House
214 Kenton Road
Harrow
Middx
HA3 8BT

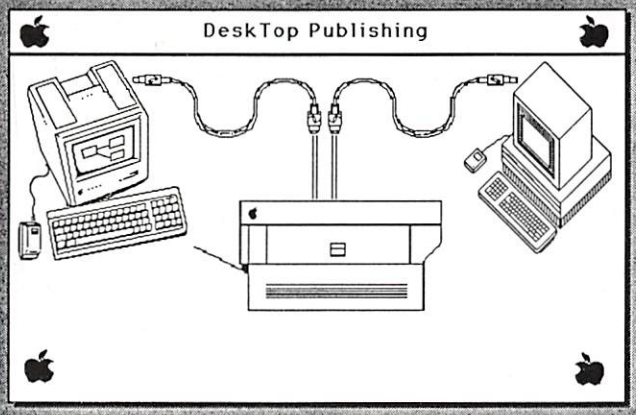
☎ 01-907-8516

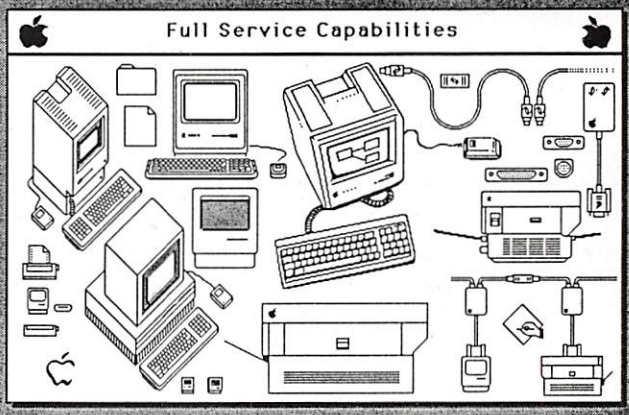
We will continue to supply of our famous range of peripherals, software and enhancements for Apple IIGS & other Apple II series computers . . . .

★★★ Bidmuthin Products ★★★

RamWorks	PinPoint	GS-Ram
Z-Ram Ultra	Autoworks	GS-RAM Plus
RamFactor	Dazzledraw	PC Transporter
RamCharger	Spell Checker	Word Perfect
Pocket Rocket	Document Check	Compiler
ProApp Drives	Fontworks	Visualiser //GS
UniShare	InfoMerge	Datalinker 1200 int. modem
//c Sys. Clock	KeyPlayer	RunRun
Transwarp	Point-to-Point	Serial Pro card
Timemaster II	Profiler	Multiscribe
Heavy Duty PSU	VIP //e,c or GS	TopDraw
Phasor Music / Speech Synth.	Visualiser //e,c	DeluxePaint II
	GS Starter Pack	

plus .....

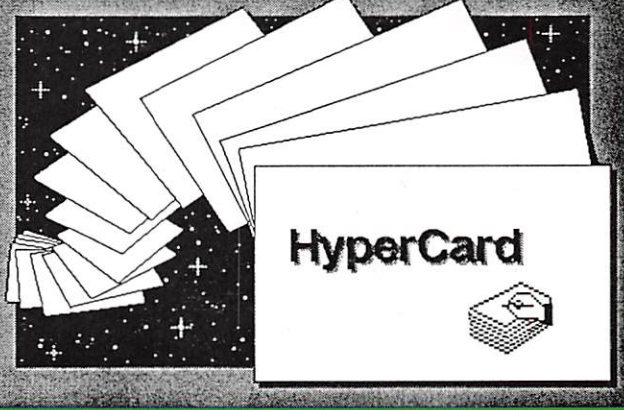




A full range of technical support, applications and consultancy services.

And stacks of other goodies!

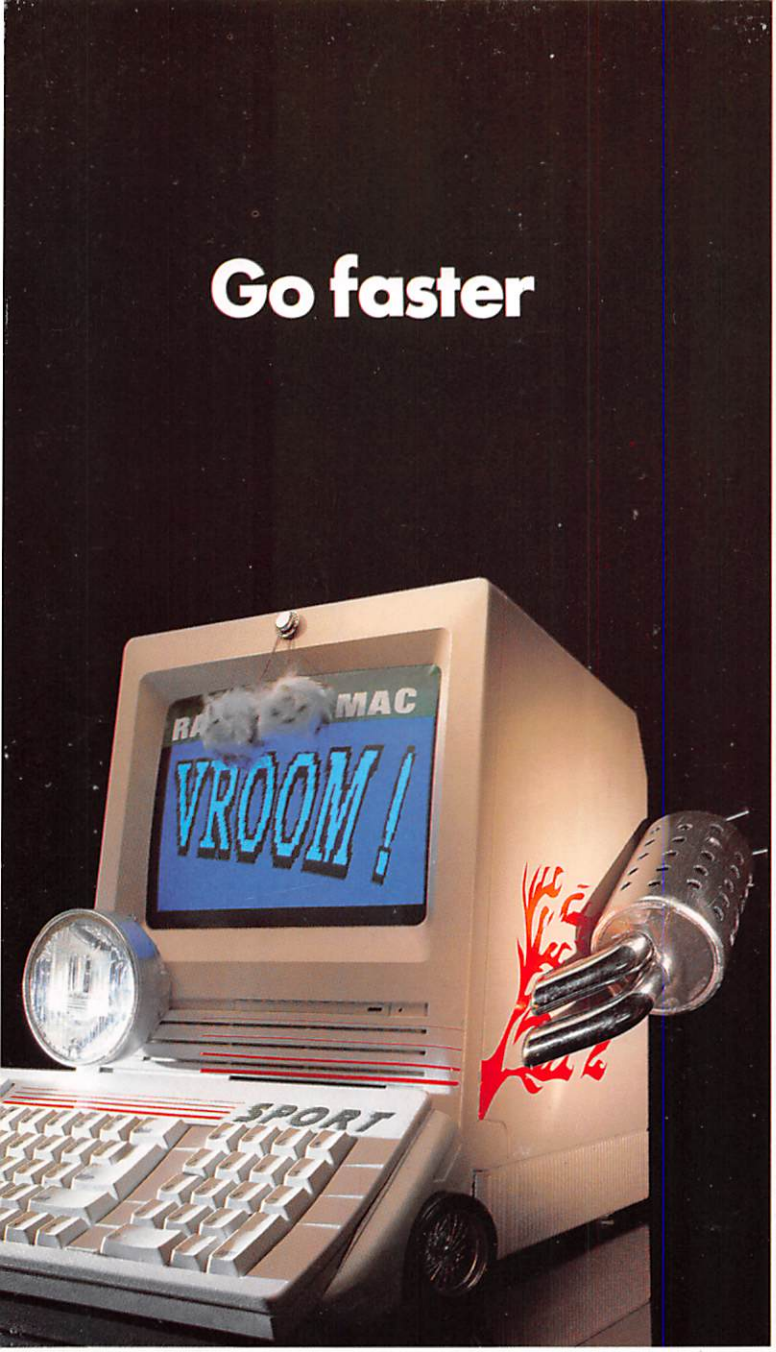
Especially with the new, exciting .....

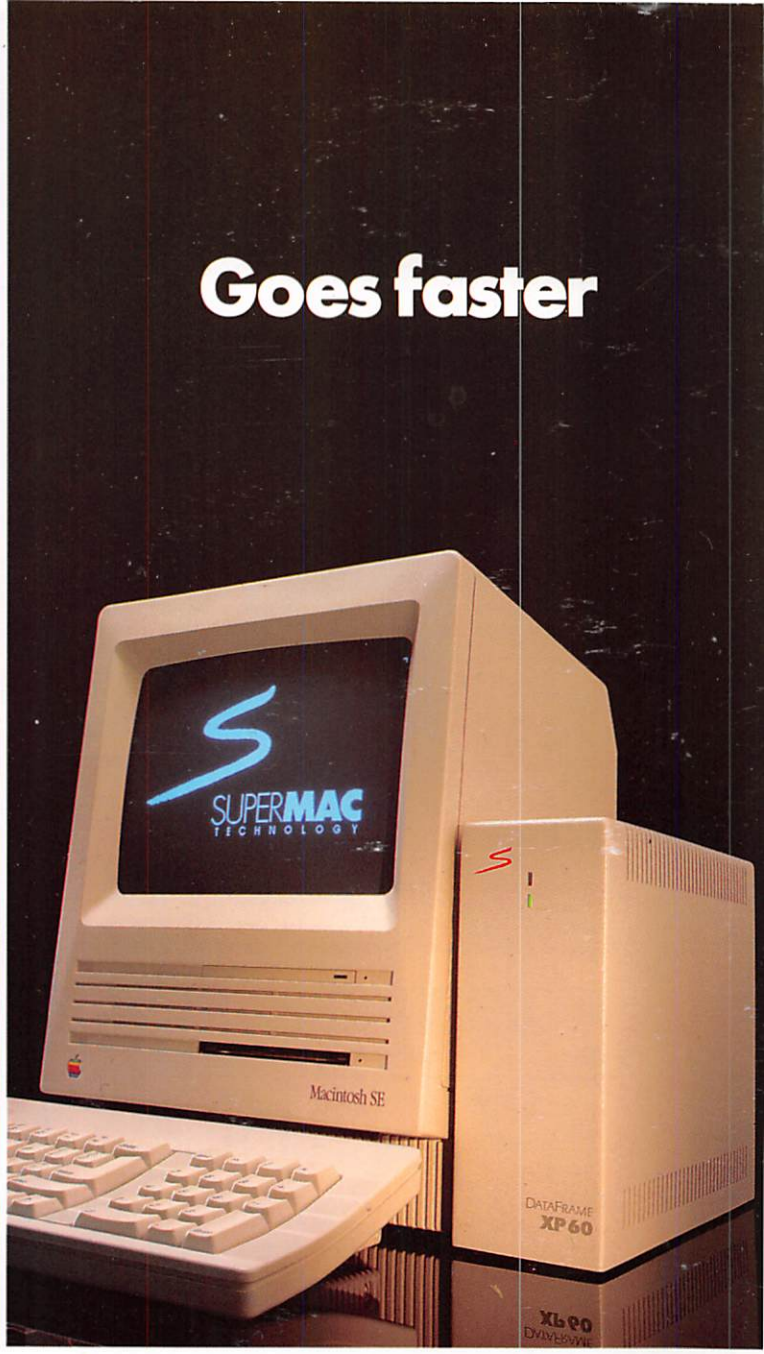


Bidmuthin Technologies Ltd.

Brent House, 214 Kenton Road, Harrow, Middx. HA3 8BT

Tel: 01-907-8516





When you buy SuperMac add-ons for the Macintosh you know that your computer is being upgraded to the absolute peak of its performance.

PRODIGIOUS POWER

Take, for example, the Prodigy SE board. A simple plug-in dealer upgrade which makes the Mac SE outpace the Macintosh II (and the VAX 11/780 for that matter). The reason is simple: the Prodigy quadruples processing power and boosts RAM by up to 32 Mb and still leaves an expansion slot for a big screen.

Now plug in a DataFrame hard disk – with 20 to 150 Mb capacities, and average access times as low as 16.5 ms. The DataFrame is one of the fastest hard disks ever built for the Macintosh. It loads your files as quick as a flash, it's quiet and small, and it blends in with the Macintosh's own smart appearance.

SOFT, STRONG AND VERY, VERY FAST

What's more, every DataFrame comes complete with *SuperLaserSpool*, the fastest print spooler for the Macintosh, *DiskFit*, the fastest floppy disk back-up utility for the Macintosh, and *Sentinel*, (you've guessed it) the fastest data encryption utility for securing sensitive information.

ZOOM ZOOM

If you feel that all this big performance justifies a bigger screen, zoom into your local dealer and ask to look at SuperView, the only 19" monitor for the Mac SE which gives you two full A4 pages to view.

SuperMac Technology
A division of:
Scientific Micro Systems
Grove House, 551 London Road
Isleworth, Middlesex TW7 4DS
Telephone: 01-847 2101
Telex: 9413164 SMSLTD G

SuperMac products are distributed by:

Northamber Plc
Units 3 & 4
Chessington Park Industrial Estate
Lion Park Avenue, Chessington
Surrey KT9 1ST
Telephone: 01-391 2066

SUPERMAC TECHNOLOGY